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DEVELOPMENT RESEARCH DIGEST

Volume II - Number 1 July 1963

A journal of
selected excerpts, summaries and
reprints of current materials on
economic and social development

Prepared by the NATIONAL PLANNING ASSOCIATION
Frances M. Geiger, DIGEST Editor
for
AGENCY FOR INTERNATIONAL DEVELOPMENT
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DEVELOPMENT RESEARCH DIGEST

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WORLD FOOD CONGRESS

HIGHLIGHTS OF THE CONGRESS

At the suggestion of B. R. Sen, Director-General of the Food and Agriculture Organization of the United Nations (FAO), the 1960 annual Conference of the Organization authorized an international Freedom from Hunger Campaign extending through 1965. The objectives of this six-year campaign are to increase awareness of the problems of hunger and malnutrition which afflict more than half of the world's people, and to stimulate both national and international efforts to overcome these deficiencies. The campaign aims to achieve these objectives through education, research and action programs.

As the midpoint of the Campaign, a World Food Congress was planned for 1963 to bring together representatives from the participating governments and from nongovernmental organizations to assess progress in attacking world problems of hunger and malnutrition, to identify gaps in knowledge, and to determine the areas in which greater efforts were needed. The World Food Congress was held in Washington from June 4 to 18, 1963, on the twentieth anniversary of the Hot Springs Conference of 1943, which originated the proposal for an international organization in the field of agriculture, subsequently realized by the establishment of the FAO in 1945. The Congress was attended by over 1,300 delegates, representing 104 countries and numerous nongovernmental organizations active in the field of food and agriculture.

The work of the Congress was organized under four commissions, which held separate sessions to hear and discuss papers in their subject fields. The Technical Commission dealt with the use and abuse of land; better farming and better yields; more nutritive diets for poorly-fed peoples; and policies and programs for improving nutrition. The Economic and Social Commission was concerned with the role of agriculture in national development planning; the planning of agriculture; the functions and forms of external aid; and the lessons of individual country experience.

The Education and Research Commission analyzed education and agricultural development; public services as aids to rural development; and the roles of applied and long-range research. Finally, the Commission for People's Involvement and Direct Action discussed the roles of social groups and citizens organizations; and the participation of specific industries important for agricultural improvement.

In opening the Congress, Director-General B. R. Sen outlined its task as follows:

> "This World Food Congress meets at a critical point in human history. If at this hour of decision, we let ourselves drift, the consequences may be serious indeed. This is why you have gathered together at this Congress. It is true that you are participating in your individual capacities and cannot commit your governments. Yet you can do something of immense value through this Congress. By discussing the nature of the problem, its causes and cures in different cultural and economic environments, the barriers that stand in the way of rapid progress, the lessons that you can learn from the experience of one another, the gaps in knowledge that exist, you can point to the directions in which we should all move to accelerate the pace of progress."

President John F. Kennedy welcomed the delegates to Washington and, in a short address, summarized the essence of the world-wide problem of hunger and malnutrition. The goal of cooperative efforts, he declared,

> "...must be to produce more food in the nations that need it. Know-how is not the problem. For the first time in the history of the world we do know how to produce enough food now to feed every man, woman, and child in the world, enough to eliminate all hunger completely. Farm production has undergone a scientific revolution which is dwarfing the industrial revolution of 150 years ago, but this means that agricultural departments and ministries and governments and citizens must make a greater and more systematic effort to share this knowledge. For the first time to know how to conquer the problem and not conquer it would be a disgrace for this generation. We need to help transmit all that we know of farm technology to the ends of the earth, to overcome the barriers of ignorance and suspicion. The key to a permanent solution to world hunger is the transfer of technology which we now have to food deficit nations, and that task, second to none in importance, is the reason for this Congress."

Stressing the importance of the farmer's motivation and knowledge, George D. Woods, President of the World Bank, pointed out that:

> "A thriving agriculture depends most of all on the human factor, the individual farmer himself, and he must be given every help and encouragement. If the world is to know freedom from hunger, then the

farmer must be enabled to learn freedom from habit. The technology for feeding the world undoubtedly exists, but the farmer must be helped to grasp it and make it work for him. He must break out of his old rounds and learn new ways of doing things. From simple tiller of the soil, he must now become technician and businessman too.

"Agriculture is the economic sector which more than any other depends on internal effort. It is possible for an outside agency to install a power plant, build a road system or construct a harbor works and have them function for awhile, even if local understanding of the techniques of these installations is not widespread. But agriculture depends on the knowledge, the motivation and the effort of multitudes of human beings inside the developing countries."

U.S. Secretary of Agriculture Orville L. Freeman, who was elected Chairman of the Congress, spoke on the lessons learned in recent years from experience in transferring technology, food and other forms of assistance from the developed to the developing nations:

"It is perhaps one of the most fortunate coincidences of history that at a time when the developing nations of the world are in a take-off stage in which more food is desperately needed if they are to take off successfully -- at that same period the developed nations are producing and can produce an abundance so great that it is sometimes embarrassing. It is up to us, from developed and developing countries alike, to take full advantage of this fortunate coincidence.

"It will not be easy. We, in the United States, are eager to share with others in this conference the experience we have gained in the distribution of more than $12 billion worth of food in our Food for Peace program during the past nine years. We have learned that it is not easy to give away food. We have learned that careful planning and close cooperation with receiving nations are essential in order to insure that the food is used to best advantage both to allay hunger and to promote local development. We have learned of the fears of other food exporting nations, and of our own commercial exporters, who are concerned lest food that is donated might diminish commercial demand. We have learned that however rigorously we avoid any such result it is still difficult to allay the fear. We have also learned how much depends on the capacity and ability of the receiving country to transport, store, distribute and use the food it receives to best advantage.

"We are only beginning to learn how effectively food aid can be used to promote economic growth directly. It has long been used, and should continue to be used, to relieve hunger in emergencies, and to prevent inflation in countries going through the stages of development. Its use in school lunch and child feeding programs is an investment in

the health and vigor of the rising generation, and is in a very real sense a capital investment in human resources. But it is only recently that we have begun to develop ways that food can be used as a direct input for economic growth.

"Food is being used with dramatic success as part payment for work on labor intensive programs -- irrigation, road building, the building of schools and other public facilities. It is is being transformed into an investment that helps to build cooperatives and other forms of private enterprise. It is being used to help resettlement of farmers on new lands. It can be used to provide a high proportion of the capital investment required for the development of many programs essential for economic growth. Discussion, consultation and further experience can result in the improvement and extension of these methods of using available food as capital in improving agriculture and hastening economic development.

"Let us, here at this Congress, determine to find new and better ways to use to greatest advantage this instrument of abundance that we have at hand. Let us determine to overcome the difficulties that lie in the way of its maximum use. This is a challenge to both the developing and the developed nations."

During two weeks of working sessions, the Congress heard and discussed several hundred papers prepared by experts from all over the world on the various subjects included under the four Commissions.

At the concluding plenary sessions, a Declaration was adopted outlining the tasks ahead in overcoming hunger and malnutrition. In it, the Congress unanimously urged that: "speedy and decisive action be taken:

"1. by all governments of the developing countries

(a) for a planned and integrated use of resources which at present are largely under-utilized;

(b) for the adaptation of their institutions to the requirements of economic and social progress; and, more specifically, to secure the most effective administrative machinery, to give incentives to increased production through ensuring just and stable prices, and to reform, where required, unjust and obsolete structures and systems of land tenure and land use so that the land might become, for the man who works it, the basis of his economic betterment, the foundation of his increasing welfare, and the guarantee of his freedom and dignity;

"2. for the maximum utilization of the stock of scientific and technical knowledge and the promotion of both short- and long-term adaptive research suited to the conditions and requirements of the developing countries;

"3. for the massive and purposive education of the rural populations, so that they will be capable of applying modern techniques and systems, and for universal education to expand the opportunities for all."

In his final address at the concluding session, Director-General Sen summed up the results of the fortnight's discussions and pointed out the changes that had occurred in the twenty years since the first World Food Congress in 1943:

"The dimension and urgency of the problem of hunger have increased tremendously since 1943, and vast new pressures for economic and social betterment have arisen in the underprivileged parts of the world. While it is clear, as this Congress has demonstrated, that the technical difficulties have been grossly exaggerated, one also finds that many of the development programs, drawn with technical perfection, have not been implemented for lack of adequate measures and for the failure to mobilize mass enthusiasm for development. The condition of the rural masses in many countries has deteriorated, and social injustice continues to hamstring the efforts for progress in many lands. Independence has been accompanied by inevitable growing pains; and the burden that the transition entails on the administration has often been aggravated by the pursuit of selfish interests and private wealth. In some countries, too, the problem of pressure on the land, of ignorance and backwardness, is a reflection of odious discrimination between man and man.

"Yet at the same time there is, below the surface, a stirring of forces which can transform the scene. It is these forces which distinguish the climate of 1963 from that of 1943. In the first place, we now have the certainty of possessing the know-how for abolishing hunger and malnutrition. It is true that even in 1943 scientific advance was far ahead of application in both the developed and developing countries. But there had not been at that time the massive drive of science which has dwarfed mankind's every previous achievement. And there had not been the staggering increases in agricultural productivity in some countries which show what may follow if ever the right policies are applied. The concept of survey and mobilization of human and physical resources for initiating [through planning] a process of development was hardly known. Administrators, technicians, biologists, economists and scientists worked in almost complete isolation from one another and there was little attempt at coordination either at the national or international level. These

new concepts of survey and coordination are now regarded as commonplace and enter into all our plans and programs.

"Secondly, there is now a much greater awareness of the existence of world hunger. What is more important, the consequences of the growth of inequality, of the growing misery of the developing countries and of the ever-increasing enrichment of the rich, are now better realized. That 'surpluses' are surpluses only in name, and that they must be used to help the developing countries to help themselves, was perceived by few in 1943. It took at least ten years for action to be initiated, and nearly twenty years for this philosophy to become the consensus of world opinion.

"The third major difference between 1943 and 1963 is that it has become the established policy in the developed countries to extend assistance to countries in the process of development. The questions on which agreement is yet to be reached are now more of scale and form. It is true that principles are still to be established to ensure that the distribution of the burden, though burden is not quite the right word, is equitable, and that all countries participate in the task of international reconstruction.

"All this will be fruitless if we fail to act, and we shall meet with disaster the proportions of which we can foresee even today. Let not future generations accuse us of failure to take action while there was time."

(No decision has as yet been made as to when the Proceedings of the Congress will be published and whether the Conference papers will be printed.)

SUMMARY OF WORLD FOOD SUPPLIES AND NEEDS

/From Third World Food Survey, Freedom from Hunger Campaign Basic Study No. 11; Rome, Food and Agriculture Organization of the United Nations, 1963, pp. 5-10 and 75-77. Price US$1.50./

/The following excerpts summarize the main conclusions of the report, which contains information in greater detail on: developments in the world food situation; levels, patterns and trends of food consumption; nutritional targets; food supply targets; and the size of future food needs./

These are excerpts from the report.

Like the first and second world food surveys, the third world food survey is concerned with these fundamental questions: What is the food consumption of the populations of the different countries? How does it compare with their needs? Where are the most serious shortages? What kinds of food and what quantities of each are needed to achieve improvement in nutrition throughout the world? What are the technical, economic, and social factors underlying this aim?

The first World Food Survey was published in 1946, only a few months after FAO had been established, at a time when statistical services of many countries were still disrupted and the prewar period was the latest for which information on a world-wide basis was available. Admittedly, there were large gaps in the statistical information relating to this period. The Second World Food Survey was published in 1952. It was essentially concerned with the same basic questions as the first, viewed in the light of changes that had occurred and the greater knowledge available. By that time current statistics from many countries were more readily obtained than in 1946 and the food balance sheet method of estimating food supplies for human

consumption had been considerably improved. Data on food supplies for the postwar period and also revised data for the prewar period could be prepared for 52 countries covering some 80 percent of the world's population. Moreover, a distinct advance had taken place in establishing standards for calorie requirements for individual countries based on age and sex composition of the population, the reference body weight, average physical activity and the mean environmental temperature.

The Third World Food Survey, like the second, compares the present situation with the past and takes account of the trends and changes that have taken place since prewar. Thus, it covers three periods, prewar, postwar, and recent; and gives an outlook of the needs and possibilities for the future. In general, prewar data refer to the period 1934-38; postwar data refer to the period 1948-52; and the recent to 1957-59. This survey has been based on food balance sheet data for over 80 countries covering some 95 percent of the world's population. Food consumption and dietary surveys conducted in various parts of the world have provided a wealth of supplementary information. Current statistics of food production and utilization have improved in quality as a result of the introduction of objective methods of collecting data in a number of countries.

Better methods of analysis have also become available. Thus, in the first world food survey the determination of the quantitative adequacy of diets had to be made against a uniform standard of 2,600 calories per caput per day, and in the second survey such analysis was confined to countrywise comparison of the levels of intake and requirements based on the FAO calorie-requirement scale. Recently, more refined techniques based on the concept of variation in requirements among individuals and the revised FAO requirement scale have become available for estimating the incidence of undernutrition from data collected in household food consumption surveys. Much the same conditions are true regarding the estimation of the incidence of malnutrition.

The Current Situation

The broad conclusions of the third world food survey are as follows:

1. The world food supply available per caput, though higher than in the postwar years, is only slightly above the prewar level. The progress over the last decade has mainly taken place in the developed areas with the result that the gap between the developed and the less developed areas has tended to increase rather than to decrease.

2. The calorie content of the diet has generally regained the prewar level in both the developed and the less developed areas. Nevertheless, the current calorie supply per caput in the less developed areas falls short of the corresponding requirement and it is estimated that at least 20 percent of the population in these areas is undernourished.

3. The nutritional quality of the diet has shown a distinct though small improvement over the prewar level. However, this improvement has again mainly taken place in the developed areas, while in the less developed areas the quality of diets has barely regained the unsatisfactory prewar level. Reports of dietary and clinical surveys show that nutritional deficiency diseases are still common in large parts of the world. Retarded growth of children, poor physique and health of adults, low resistance to disease, particularly in children below 5 years, and low working efficiency together with high mortality rates among young children and low expectations of life are an indication of widespread malnutrition in the less developed areas. This is not surprising, since in these areas the level of animal protein intake is only one-fifth of that in the more developed areas.

4. It is generally agreed that if more than about 80 percent of the calories in a diet are derived from cereals, starchy roots, and sugar, there is a risk that the nutritional quality of diet is inadequate. If this percentage is less than about 80, the diet is likely to be adequate. In well-fed countries like the United Kingdom and France hardly any households derive more than 80 percent of their calories from cereals, starchy roots, and sugar, whereas some 60 percent of the households in the less developed countries have a proportion exceeding 80 percent. In other words, it appears probable that some 60 percent of the households in the less developed areas live on diets which are inadequate in nutritional quality.

5. Presenting the results of undernutrition and malnutrition for the world as a whole, the survey concludes that 10 to 15 percent of its people are undernourished and up to a half suffer from hunger or malnutrition or both.

6. If the world population were to grow according to the United Nations projections under the "medium" assumption (and recent indications are that the population growth is likely to be larger), then by 1975 world food supplies would need to be increased by over 35 percent merely to sustain the world's population at its present unsatisfactory level of diet. If, in addition, a reasonable improvement in the level of nutrition is to be brought about, world food supplies would have to be increased by over 50 percent, and in particular, food supplies of animal products would have to be increased by some 60 percent. In the less developed areas where the population increase will be faster, the corresponding figures are much higher. In these areas total food supplies will have to be increased by some 80 percent and those of animal foods by over 120 percent.

7. In order to achieve these targets by 1975, the less developed countries would need to aim at an annual rate of increase in per caput food supplies approaching 2 percent. Since the income elasticity of the demand for food in these countries may be expected to be of the

order of .7, this in effect implies a rate of growth in per caput income approaching 3 percent. Should the population grow at a rate of about 2 percent suggested by the United Nations projections, the aim should be to increase the aggregate national income by some 5 percent per annum, which is compatible with the target for the decade 1960/70 in the plans for activating economic development through the joint efforts of the United Nations and its Specialized Agencies.

8. The targets for 1975 are only a first step in improving the level of food consumption and nutrition. The survey also looks further ahead and concludes that should the population grow according to the United Nations "medium" projection, the world's total food supply would have to be trebled by the year 2000 in order to provide a reasonably adequate level of nutrition. For the less developed areas, total food supplies would need to be quadrupled and the supplies of animal products should be raised to six times the present volume.

The Possibilities of Producing the Required Food

What are the possibilities of producing the needed foods?

Production possibilities were kept in mind when setting up the short-term targets, but one is left wondering whether the large increases can in fact be achieved over a decade or so. These doubts may be even stronger in the case of the more distant objective. But there should be little room for doubt on one score: the world could grow enough food to meet all these needs if we made rational use of nature's bounty. Doubts arise because the necessary effort to reach the targets may not be made. Other objectives may cloud the horizon: the financial resources required to develop the world's agriculture may not be made available; the incentive to expand production may be absent in many parts of the developing world and the underdeveloped countries may be unable to purchase the food supplies they require.

If present technical knowledge can be spread, potential food production is extremely large. The use of organic and inorganic fertilizers, control of pests and disease, better seed and appropriate methods of cultivation, together with the large possibilities of extending irrigation and double-cropping, provide the means of increasing crop and fodder yields. Better and scientific feeding, timely use of forage crops, control of animal disease, and an efficient breeding program can likewise increase yields of livestock. Without any expansion of the cultivated area the production of crops could well be doubled. For livestock products the prospects are even better, although yields as high as those in some developed countries are not likely to be obtained until the scarcity of feeding stuffs has been overcome.

Lack of adequate soil surveys makes it difficult to say how much land is capable of producing crops, but the area is very much larger than the 10 percent of the world's surface which is cultivated at present. Finally, a substantial increase in the effective yields can be made by improved methods of storage. For all these reasons it seems that supplies at the retail level could well be increased fourfold, and the true upper limit is probably much higher.

The agricultural resources can also be supplemented by a very great increase in the production of fish. The targets set imply an expansion of about fourfold by 2000, which may call for exploitation of marine resources outside the conventional fishing areas. There is also great scope for increasing production and improving the access to supply by deliberate culture of fish in inland lakes and waterways.

The position is more critical when we consider the requirements region by region. The low-calorie countries need to increase their food fourfold by 2000. In Latin America and Africa this expansion could be met by both increases in yields and expansion in the cultivated area, although this may not be achieved easily in areas of Africa where the custom of permanent settlement has scarcely been established. Where the shortage of land is acute, as in the densely populated countries of the Far East and in the Near East, the problem is mainly one of raising yields through intensive agriculture. These countries must make the most of the "advantages of backwardness" quickly; otherwise the production may have little hope of keeping pace with the population.

In the high-calorie countries of the world, production seems more than likely to keep pace with the population growth. Even without any increase in incentive, a rise in the productivity of land of the order of $1\frac{1}{2}$-2 percent is not merely possible but probable; and in addition in some areas (eastern Europe and the U.S.S.R.) a large acreage is available for new cultivation.

Clearly, it is possible for countries with food surpluses to export food supplies to the low-calorie countries; but it is hardly conceivable that it can become a permanent means of redressing the imbalance between the regions, unless a final answer can be found to problems associated with the balance of payments. For example, in the case of the Near East, where it is a little difficult to see how the extra food is going to be produced, the exports of oil may be sufficient to pay for food. But in general, the importation of food by developing countries should take second place to increased national food production, and justifiably so. Surpluses, particularly of milk products and cereals, occurring in the rest of the world can make a contribution to the needs of the underdeveloped countries, but only if very deliberate steps are taken to use them to increase their production potential. The World Food Program launched jointly by the United Nations and FAO on an experimental scale is a welcome indication of our awareness of this task.

THE SIGNIFICANCE OF THE JAPANESE AGRICULTURAL EXPERIENCE FOR OTHER COUNTRIES

[From "Agricultural Development in Modern Japan: the Significance of the Japanese Experience," a paper printed in English, French, and Spanish for the World Food Congress (Food and Agriculture Organization of the United Nations, Economic and Social Commission, Agenda Item: II.C.1-WFC/63/CP/II.C.1, 1963). This paper is the final section of a four-part report Agricultural Development in Modern Japan, to be printed in English, which, when published later this year, will be available from the Japan FAO Association, Tokyo. This final section is now available from the Food and Agriculture Organization, Rome.]

[For the World Food Congress, the FAO has prepared a case study of agricultural development in modern Japan. The main portion of this comprehensive study was prepared by Japanese experts and covers the history of Japanese agricultural development, its legal and institutional aspects, and its technical progress. The last portion of the study, from which these excerpts were taken, is concerned with the significance of the Japanese experience for other countries. It was prepared by an international group of experts, consisting primarily of other Asians, but including also some Japanese, and some non-Asians with specialized knowledge of Japanese economic and agricultural development. It is a model of useful, empirical analysis.]

These are excerpts from the paper.

In the widest sense, the interest of the Japanese experience for the developing Asian countries lies in the fact that Japan was the first Asian country which succeeded in bringing about a striking transformation in the productivity of its agriculture -- whether measured in terms of land or labor. Despite other differences, the point of commencement for Japan in this process was much the same as for other countries of the region -- a traditional agriculture characterized by

small-scale subsistence farming and dominated by social relationships of a hierarchical or feudal character. The level of productivity of Japanese agriculture prior to the Meiji restoration -- as measured by yields per acre or per man -- was probably not very different from, or at best only moderately higher than, levels of productivity which persist to this day in many parts of the region.

The Relevance of Japanese Experience

In a more specific sense, however, what is of interest to other countries is not so much the fact of this transformation in agricultural productivity. It is rather that it took place within a traditional framework of small-scale farming. The average size of the Japanese farm was approximately 1.0 hectare in 1878 and 0.8 hectare in 1962. At the same time, the average yield per hectare, in rice farming for instance, rose from 1.8 metric tons per hectare in 1868-82 to 4.0 metric tons (husked rice) in 1956-60. This is in marked contrast to other countries which have undergone rapid economic development. There, the rise in agricultural productivity has been associated with fairly large farms, or with farms whose size was actively increased -- whether by opening up new land for large-scale cultivation, enclosure movements, or by the introduction of collective or cooperative farming.

This aspect of the development of Japanese agriculture -- the maintenance of small-scale farming -- is of deep interest to the developing countries of Asia today. In these countries, the prevailing system of agriculture is one in which a relatively large rural population subsists on small-scale units of production. There is a pressing need to raise the productivity of agriculture to meet the food needs of a rising population and also as an essential part of general economic development. At the same time, however, the tempo of population growth today is often so fast -- faster than that experienced by Japan -- and the problem of finding employment for the growing work force so great, that these countries can seldom countenance methods of raising agricultural productivity which involve a marked reduction in the size of the rural population. On the contrary it is probable that as a rule the numbers of people dependent on agriculture will increase for some decades to come.

Herein lies, perhaps, the major significance of Japanese agriculture to the countries of Asia. Japan was able to raise agricultural productivity without a significant reduction of the total agricultural work force, and within the system of small-scale farming. Between 1878 and 1912 the total agricultural work force in Japan changed only slightly from 15½ million to 14½ million persons. In other words, although the expansion in the non-agricultural sectors of the economy was exceptionally rapid, it sufficed only to absorb the increment to the total work force brought about by population growth. It was not rapid enough to cause a significant reduction in the agricultural work force.

If Japan had had to face a population explosion without a rapid growth of non-farm occupations, the rapid growth of agricultural productivity would not have been possible.

How Japan succeeded in increasing the productivity of agriculture on small farms with the existing work force is, therefore, the central point of interest in the Japanese story. There are, however, other points of interest as well. The transformation of productivity, especially during the early period, did not for instance involve the adoption of capital intensive methods of production on any large scale, though it was, of course, closely associated with the increased use of working capital in the form of fertilizers, etc. This made possible an economy of capital resources in the process of agricultural development -- a point which is of natural interest to countries which are relatively short of capital.

Moreover, the Japanese experience illustrates how agriculture was able to fulfil its traditional role in the strategy of overall development. Japanese agriculture -- in the course of the transformation in productivity -- was able to assume the role of an earner of foreign exchange, a provider of investment resources for other sectors, and a supplier of raw materials for industry, as well as meeting for some decades the rapidly growing urban demand for foodstuffs. That all this was possible within a system of small-scale farming is, once again, the point of special interest in the Japanese example.

Nonetheless, raising the productivity of agriculture involved a number of major changes. There was, in the first instance, the need for changes in technology, for the introduction of methods of production which made high yields compatible with small-scale cultivation. There was also the need to provide the farmer with the incentive to increase production; this involved far-reaching changes in the system of land tenure, in systems of land taxation, and in the impact of monetary forces. Above all, there was the need to develop and transmit the knowledge of technology to the farming population; the creation of an elaborate network of research institutions and of extension and educational programs is an intrinsic part of the development of Japanese agriculture.

The Significance of Differences

In many respects, the Japanese experience was unique, for the economic, social and traditional background in every country differs in some essentials from that of every other country. The historical setting of the early stages of Japanese development also differed sharply from the setting in which newly developing countries are only now embarking on economic development. For example, Japan's first steps were taken at a time of rapidly growing agricultural trade when it was

probably less difficult than today to increase earnings from agricultural exports. The concept of welfare had scarcely penetrated Asia in the nineteenth century and some measures used in Japan might today be considered politically impossible. As already mentioned, population grew not much faster in Japan than in European countries during their early years of development, never reaching the explosive level common in developing countries today. All these factors make relatively more difficult the task of countries only now setting out on economic development. Yet they have some counter-balancing advantages, notably in access to a much more advanced technology than existed in the nineteenth century. There is also an inflow of foreign aid and investment which may fall far short of their needs, but is certainly much larger than any that Japan enjoyed.

Another obvious difference is climate. Japan is a well-watered and temperate country, while most developing countries today are in arid or in wet tropical climates. It is difficult to assess the significance of this difference, but it is noteworthy that Japanese methods were successfully transplanted to the very different climate of Taiwan, though only after a fairly lengthy period of research. Japan probably had an advantage in that the main body of agricultural science is related to temperate conditions. But corresponding advantages, e.g., faster growth and greater opportunities of double-cropping in tropical climates, or better control of water in arid irrigated areas may ultimately compensate for the initial disadvantages of most developing countries today.

All these are evident differences between Japan and most developing countries today. Our object in noting them is not to attempt any assessment of advantages and disadvantages, which could only be fruitless. It is rather to stress that the Japanese experience can seldom be transferred to other countries without considerable adaptation. This, however, in no way lessens its significance for those countries who seek to learn from Japan's remarkable achievement.

The Role of Government

The outstanding success of Japanese agricultural development must be quite largely ascribed to the flexibility and thoroughness with which its policies and measures have been applied. As weakness became evident in operation, or if a particular measure seemed not to be achieving the objectives required, legislation was quickly modified to ensure that the intended objectives were attained. Similarly, policy measures were applied on a scale and with an intensity commensurate with the ends in view -- something by no means common in developing countries, or for that matter in a good many countries at an advanced stage of economic development.

For example, the original Act of 1900 establishing agricultural cooperatives was substantially improved by a whole series of later acts which ensured that cooperative facilities for credits, marketing and purchasing were available to all farmers, even in remote hamlets, and that these facilities were closely related to the needs of farmers at the time. The same is true of price-stabilization measures. The original Act of 1920 was constantly modified or replaced by new acts in order to plug leaks in the system and to adapt policy to changing circumstances. Above all, care was taken to implement price-stabilization measures so effectively that consumers could count on buying at the prescribed maximum price, and farmers on receiving the assured minimum price. Hence, when incentive measures to stimulate production were introduced after World War II, they did in fact have an impact on the very farmers they were intended to influence. Such effective operation is all too rare in Asian countries or, indeed, in other economically underdeveloped regions of the world, and goes far to explain the rapid progress of Japan.

Similarly, while agricultural research, education and extension methods in Japan were not essentially different from those used elsewhere, they were carried through with a realism and intensity which make them almost unique. Agricultural research was rigorously directed towards the felt needs of farmers or the requirements of policy. The extension services were staffed on a scale which made advice on farm management readily available to all farmers. Extension workers were encouraged to live in the villages they served instead of spending much of their time at district or provincial headquarters. Agricultural cooperatives were encouraged to provide farm advisory services, for which small charges were made. Methods were developed through farm meetings and other means for the exchange of information between farmers.

One other particularly valuable feature of Japanese agricultural administration, which should be mentioned, and one which deserves study by other countries, has been the farm household survey, conducted regularly since 1921, and extended on a modern sample basis after the war. The survey collects detailed information on household and production expenditures, on receipts from farm sales, on credit and indebtedness, etc. In this way, it provides an information service -- possibly unique in the world in its scope and thoroughness -- on changes in the circumstances of farmers which must be invaluable as a guide to policy. With this and with a remarkably full supply of other statistical and economic information at his disposal, the Japanese administrator is possibly better equipped to make informed policy decisions than his opposite numbers in any country in the world.

Main Elements in Japanese Progress Significant for Other Countries

One notable feature of Japanese development was the very close interrelations between agriculture and the rest of the economy. Neither

could have developed as rapidly as it did without comparable development in the other sector. The early stages of Japanese development were built on an agricultural base. Above all, agriculture provided most of the resources needed both for government and for investment in industry. Overwhelmingly agricultural, like most other developing countries, Japan had at the start no other source of funds since there was little or no foreign investment.

But agriculture's debt to industry was no less crucial. The pace of agricultural development could not have been maintained without the rapidly growing market on its doorstep resulting from the rising urban demand. No less important, the rapid growth of industry drained excess labour from agriculture, thus avoiding a further sub-division of the already small farms which would have made it still more difficult to raise agricultural productivity. Again, as Japanese industry developed, it was able to provide first the fertilizers, and later the pesticides, farm machinery and other requisites of an advanced agriculture. Technological innovations in industry often found application in agriculture. This close integration between the two main sectors of the economy is particularly worthy of study.

A second feature of the Japanese experience is that it underlines the enormous potential for growth latent in the agriculture of developing countries within the framework of small farms. When the Japanese renaissance began, the yields of rice and other crops were little if at all higher than those now obtained in most Asian countries. It is noteworthy that the first advances in productivity came not by importing knowledge from abroad, but by studying and propagating the methods of her own best farmers, and by selecting the best indigenous varieties of the main crops. The first phase of agricultural development was built primarily on traditional practices; the so-called "Meiji technology." Other developing countries might well study Japan's lead in this respect.

Later, of course, research and experiment stations made an immense contribution to Japan's agricultural development. But this was done not by taking over farming techniques from abroad, but by using agricultural science to solve the felt problems of Japanese farmers. Full account was taken not only of ecological conditions, but also of economic and social conditions in Japan. Methods of raising farm output were evolved which required relatively little investment of fixed capital, but which made full use of the abundant labor resources with the help of considerable injections of short-term working capital.

A third point, already stressed, was the attention paid to organization, and the exceptional thoroughness with which policies were carried through and effectively implemented by a strong central government intent on modernization.

The organization of economic services to farmers was no less impressive. In developing countries, small working farmers are notoriously the economically weakest section of the community and meet with great difficulties in marketing their produce advantageously or in obtaining resources to improve or extend their operations. In Japan these basic handicaps have been largely overcome by the development over the years of an efficient cooperative organization to which practically all farmers belong. Organized primarily as general purpose cooperatives, and extending their network to the remotest hamlet, the cooperative associations make adequate credit, purchasing and marketing facilities available to virtually every farmer. They provide him with the funds to buy production requisites or to adopt new practices; they supply these requisites on favourable terms; they help even the smallest farmer to realize the full market price for his product. Finally, they effectively channel price supports, production subsidies and other incentives to the farmers themselves, thus ensuring that they make their full impact. The present strength of Japanese agricultural cooperatives owes much to their use by the government as agencies for purchasing, warehousing, etc. The cooperative associations must have contributed much to agricultural development, not least in building up an inner strength in the rural community and giving farmers the will and confidence to embark on new practices and undertakings.

This inner strength derives also from the system of land tenure resulting from the two major land reforms carried out in Japan. The first, about 1870, was designed primarily to replace feudal dues by a central land tax, but established also an enterprising class of small landowners, frequently cultivating their own land. For the next 30 or 40 years, they were the main driving force in Japanese agriculture, though their progressive character waned gradually with the spread of absentee landlordism. The second land reform after World War II again restored the land to the actual cultivators. Here, too, what is remarkable about Japanese experience lies not so much in the land-reform laws themselves, which did not differ essentially from those in other countries, but in the thoroughness with which they were implemented.

Japanese agricultural development is based on highly labour-intensive methods seldom found except on small family farms. But these methods have been fostered by the gradual evolution of an institutional and economic framework which provided the necessary incentives by ensuring that farmers would benefit from their increased efforts.

One last point may be made. Nearly one hundred years have passed since the Meiji restoration set in motion Japanese economic development. During this time there has been a wide range of conditions, with periods of boom and depression; of food shortage and surplus; of unrestricted landlordism and secure land tenure; of laissez-faire and price stabilization; of traditional and of scientific agriculture. There were times

when agricultural development slowed down, notably during the interwar years when conditions were particularly adverse. And yet seen throughout the entire period under review there has been a continuing development of agriculture, faster certainly in favourable than in less favourable periods, but always tending towards increasing productivity. Japanese experience suggests that progress is possible even when conditions are less than optimum, given a strong government lead, a flexible and practical rather than a doctrinaire approach, and perhaps also on the part of farmers and officials a certain pride in a job well done.

BASIC STUDY SERIES FOR THE
FREEDOM FROM HUNGER CAMPAIGN

Published in English, French, and Spanish, these attractively printed and well-illustrated monographs provide basic facts and generally accepted ideas about the problems of world hunger and malnutrition and how they might be overcome. They are written by experts in each field and are intended for the education of the public generally in both developed and less developed countries. The studies are being published by the FAO and other organizations of the United Nations. The twelve issued to date are listed below:

Weather and Food, FFHC Basic Study No. 1;
World Meteorological Organization, Geneva,
1962, 80 pp., US$0.50.

Explains in nontechnical terms the relationship between weather and food production; the methods for guarding against adverse weather effects; and the prospects for influencing weather, particularly rainfall.

Development Through Food: A Strategy for
Surplus Utilization, FFHC Basic Study No. 2;
Food and Agriculture Organization, Rome,
1962, xiii and 162 pp., US$1.50.

Describes the various ways in which surplus food available from certain developed countries can be used to assist development programs in agriculture and other fields in the less developed countries.

Animal Disease and Human Health,
by James H. Steele, FFHC Basic Study No. 3;
Food and Agriculture Organization, Rome,
1962, vii and 50 pp., US$0.50.

Because a major element in overcoming malnutrition is to increase the protein content of the diet, this report analyzes the losses due to animal disease and describes the methods whereby they are being overcome.

Marketing: Its Role in Increasing Productivity,
by J. C. Abbott, with contributions by S. Bethke,
D. Bojilov, A. D. Goseco, H. Lodi, and F. Shah,
FFHC Basic Study No. 4; Food and Agriculture
Organization, Rome, 1962, x and 115 pp., US$1.50.

Explains the adverse effects of inadequate marketing arrangements on farmers' incomes and consumers' living standards, and discusses the kinds of improvements in marketing which less developed countries can undertake.

Nutrition and Working Efficiency, FFHC Basic Study
No. 5; Food and Agriculture Organization, Rome,
1962, vi and 47 pp., US$0.50.

Shows the relationships between the number and kinds of calories eaten by various types of workers and their productive efficiency, and describes programs for improving nutrition particularly in less developed countries.

Education and Training in Nutrition, FFHC Basic
Study No. 6; Food and Agriculture Organization,
Rome, 1962, vi and 56 pp., US$0.50.
Currently out of print.

Discusses what people in the less developed countries should know about proper nutrition if they are to produce and consume the necessary foods.

Population and Food Supply, FFHC Basic Study No. 7;
United Nations, New York, 1962, xiv and 49 pp., US$0.50.

Explains in nontechnical terms the long-range projections of population growth made by UN experts and the implications for food supply in the future.

Aspects of Economic Development: The Background to Freedom from Hunger, FFHC Basic Study No. 8; United Nations, New York, 1962, xi and 84 pp., US$0.50.

As a background for the Freedom from Hunger Campaign, this pamphlet explains the meaning of economic development; the obstacles to achieving it; the national efforts needed to overcome them; and the ways in which international organizations can assist in this process.

Increasing Food Production through Education, Research and Extension, by C. W. Chang, FFHC Basic Study No. 9; Food and Agriculture Organization, Rome, 1962, vi and 78 pp., US$1.00.

Describes the work done under agricultural extension programs, the research undertaken to improve agriculture, and the education and training needed by agricultural experts and farmers.

Possibilities of Increasing World Food Production, by Walter H. Pawley, FFHC Basic Study No. 10; Food and Agriculture Organization, Rome, 1963, ix and 231 pp., US$2.50

Surveys the various regions of the world to determine the extent to which agricultural production could be increased in each and the measures necessary for doing so.

Third World Food Survey, FFHC Basic Study No. 11; (See pages 7 to 11 above.)

Malnutrition and Disease, FFHC Basic Study No. 12; World Health Organization, Geneva, 1963, v and 47 pp., US$0.60.

Discusses the relationship between malnutrition and human diseases with particular reference to deficiency diseases in less developed countries.

AGRICULTURE

A CRITIQUE OF INDIA'S AGRICULTURAL DEVELOPMENT PROGRAM

John P. Lewis

[From Quiet Crisis in India: Economic Development and American Policy; Washington, D.C., The Brookings Institution, 1962, xiii and 350 pp.; also Bombay, Asia Publishing House, 1963, paperbound.]

[This book -- from whose chapter on the Indian agricultural situation these excerpts have been taken -- is the result of two years of travel and study in India by its author, under the auspices of the Brookings Institution, a private nonprofit research center in Washington, D.C. During this extended period, Dr. John P. Lewis was able to examine in detail the main aspects of India's development effort. His analysis covers basic development strategy; the planning process, including methodology and implementation of the three Five Year Plans; agriculture and rural development; industrialization; urbanization; methods of employing idle manpower resources; the problems and prospects of private enterprise, indigenous and foreign; exports and the balance-of-payments situation; and the experience with foreign aid, particularly in bilateral assistance relations with the United States. In certain important respects, Dr. Lewis' findings differ substantially from official Indian assumptions and policies, as also from those of U.S. agencies, both governmental and private, that have been providing financial aid and technical advice in India.

At the time this book was written, Dr. Lewis was Chairman of the Department of Business Economics and Public Policy at the School of Business, Indiana University. In December 1962, he was appointed one of the three members of the Council of Economic Advisers to the President of the United States.]

Excerpts from Chapter 6 of the book begin on the next page.

India's struggle to achieve a radical economic transformation by peaceful means is apt to be won or lost in the countryside -- not because rural problems have some sort of intrinsic priority in a development program over such other issues as heavy industrialization and foreign aid but because of the rural problems' combined quotient of importance and difficulty. Of all the essential achievements, success in the countryside may be the hardest to bring off.

For all their complexities and headaches, the problems of starting or expanding large organized industries are reasonably tractable. In these cases, despite the need for more adaptive and creative innovation, there are opportunities for borrowing a great many technological processes and some whole complexes of processes almost ready-made from the more advanced economies. And these processes tend to bring with them, as built-in adjuncts, the patterns of productive organization and the industrial discipline required for effective operation. Most advantageous of all, perhaps, is the fact that the industrial-core side of the development effort is relatively little inhibited by home-grown precedent. To a considerable degree, it can start from scratch as new construction on new ground relatively remote from the institutional encumbrances of traditional Indian society.

Rural development, by contrast, is a remodeling project. It calls for making over -- indeed, by economic standards, for radically making over -- the traditional society itself; for introducing many wholly new functions and activities, changing fundamentally many of the old ones, and revamping many of the socio-political substructures in which these activities are housed while, all of the time, the tenants continue to occupy the premises. To accomplish such a feat without arbitrarily coercing the old tenants is, almost by definition, organizationally more difficult than the "new-construction" side of the development effort.

Rural Progress Since Independence

Not only is the present level of welfare as high as most of /India's rural/ inhabitants are used to; there has been some improvement during the past decade. After a generation or more in which total farm output probably nearly stagnated, and per capita output apparently declined, total production during the fifties appears to have risen at an average of $2\frac{1}{2}$ to 3 percent a year. This has been fast enough to provide at least a slight growth in output per capita despite the accelerated rise in the population. The country people are eating better. There has not been a major famine since 1951, and experienced observers touring the Indian countryside in the late fifties reported far fewer areas that showed evidence of general malnutrition than had been the case a few years earlier.

Moreover, the ferment of rural institutional reform touched vast numbers of Indians for the first time during the fifties. The land

reform movement, despite disappointments, has had a significant impact on land tenure in most of the states. Many tens of millions of village Indians have become acquainted with the existence and vocabulary of the Community Development effort -- with "development blocks," "gram sewaks," agricultural extension workers, and the rest. Many have had their initial encounter with cooperatives. Thousands of villages have acquired their first all-weather roads connecting them with the outside world. Thousands more have their first schools, community radios, and other amenities.

The pattern of reform is incomplete; it does not yet go far enough; and some of its elements are questionable in their very concept. Moreover, the rate of output expansion achieved is not yet nearly up to the requirements for the next decade. But judged by its own past and its direction of change, the current Indian rural situation is basically hopeful, not hopeless. Some momentum in the right direction has been established, and many capable and earnest Indians have enlisted in the cause of rural development.

The Scope for Productive Expansion

There is a common thread running through a good many expert Indian and Western appraisals of the Indian farm problem. The following is a bare-bones summary of this diagnosis:

First, the very weakness -- both the average over-all weakness and, in particular, the spottiness -- of India's present agricultural performance indicates opportunities for radical improvement. Average yield per acre for many major Indian crops is far lower than comparable figures in most other countries. For most areas and most crops the mode of cultivation could readily be a good bit more intensive and effective than it now is. Moreover, there are exceptionally wide ranges of performance, not only between regions and sub-regions but even among the particular cultivators growing the same crops in the same localities. Thus there is an abundant chance, not only for raising the upper end of the performance distribution, but for increasing output simply by inducing the less effective cultivators to adopt practices that already are observable in their own areas.

Second, lack of outside capital is not the principal impediment to rapid expansion in production. To be sure, some supply shortages, notably of chemical fertilizers and, to a lesser extent, of such materials as steel, are critical. But the foreign-exchange and the scarce-capital costs of eliminating these bottlenecks are comparatively modest, and their elimination has now been accorded a very high priority in the Third Five Year Plan. Most of the other capital formation that agriculture needs is highly labor-intensive; this too, in the last analysis, is largely an organizational matter. And the rural credit problem, viewed in real terms, is entirely so.

Third, Indian agriculture likewise is not seriously constrained for the moment by scientific bottlenecks. Since continuing gains in farm productivity are going to be urgently needed for a very long time to come, to take the present position is in no sense to deny the need for an enterprising and sustained agricultural research effort. Nevertheless, the fact seems to be that in crop after crop a number of simple measures that could greatly improve yields are very well known, not only by foreign technical advisers and by many Indian government and academic experts but often by a widespread minority of the cultivators themselves. These measures include the use of commercial fertilizers and green manuring; better local water management to facilitate irrigation in many areas and to avoid water logging in others; reallocations of the available lands and water among alternative crops; differently spaced and/or more regular planting; better weeding; the adoption of simple soil conservation practices; the introduction of certain improved hand tools, such as Japanese-style paddy cultivators; and, in the case of livestock, artificial insemination and scrub bull castration.

Fourth, while India's ability to achieve the expansion in farm output it needs for the sixties may, therefore, be said to depend on getting millions of cultivators to do a lot of comparatively little things differently, success also typically will depend on getting several of these things done in concert. This is a point especially underscored by the 1959 Ford Foundation team. In many cases, for example, the need is for better water use and better seed and more fertilizers and improved cultivating practices -- and, therefore, also for better credit facilities and improved availability of supplies. This doctrine has now been emphatically accepted by the Ministry of Food and Agriculture and, in the Third Five Year Plan, it is the theme particularly of the "intensive agricultural district program" that, at the suggestion of the Ford Foundation team, the Ministry has adopted for speeding an expansion in farm production in fifteen especially promising districts, one in each state. It is hoped that a concerted attack in these areas will achieve results that, besides adding substantially to total output in their own right, will exert demonstration effects on agricultural practice in neighboring districts.

Fifth, there is no endemic lack of self-interest among the Indian peasantry. On the contrary, most careful observers seem to find Indian farmers shrewd and pragmatic in their approach to the soil. But native intelligence and an appetite for self-betterment are not enough to facilitate an automatic adoption of the "known" practices that can yield rapid increases in output. The very multiplicity of variables in the average cultivator's situation confuses the learning process. It means that partial, one-by-one changes in practices frequently are disappointing. Conversely, it is hard to pick out from the variety of things that a successful neighbor does differently the particular keys to his success. The peasant's natural conservatism is compounded by the fact that in this realm he is risking his family's subsistence when he innovates;

he wants to be shown, and to be sure, before he changes. The official techniques for showing him -- for spreading an awareness of the improved practices -- leave a good bit to be desired. Furthermore, rural officials commonly are not in a position simultaneously to provide all of the critical supplies and facilities that are needed to implement the adoption of a concerted set of improved practices by cultivators.

Last, but most important of all perhaps, most Indian cultivators live much of their time in an environment that lacks adequate grain storage facilities, good local marketing arrangements, and adequate farm-to-market roads. It is an environment that rewards abundant production with low prices, allows the cultivator to be victimized by exploitative middle men and local money lenders, and offers him little incentive to acquire cash beyond what he needs for his taxes, rents, and debt obligations. It is an environment, in short, that does not efficiently convert the cultivator's latent energies and motivations into decisions to produce as much and market as much as he can.

The Tactics of Farm Reform: Manipulate or Condition?

If the central task of Indian farm policy is to get the present array of cultivators, organized in essentially their present array of production units, to work harder, adopt new techniques, and market more of what they produce, there are two ways to do it. The more direct approach is to prod, inform, teach, exhort, and otherwise manipulate, the individual cultivator into changing his ways. The other, indirect approach is to condition him -- to restructure his environment in a way better calculated to harness his built-in motivations to the cause of expanded output. In some measure, of course, any sensible farm program will follow both of these approaches, and it will contain specific elements that might be classified either way. For example, provision of seed and fertilizer supplies may be a necessary feature of a demonstration or extension program that is essentially "manipulative" in concept. Yet if established on a sufficient and continuing basis, such supplies also obviously alter the market environment in which the producer operates. Nonetheless, the present distinction is useful, I think, for judging the predominant style and emphasis of an agricultural development effort, and in that sense the Indian effort to date can be said to have had a manipulative bias.

The predominant concern of Indian farm policy thus far has been to reach out and down to the individual cultivator, through the administrative hierarchy of the Ministry of Food and Agriculture, the state agricultural departments, the district agricultural officers, and the block-level agricultural extension officers, and do things directly to and for him that alter his behavior. This is nicely illustrated by the selected district program that, as mentioned already, the Third Plan has incorporated. The program is essentially a scheme to pour into a

few favored districts (about one-twentieth of the total number) more of everything -- more improved seed, more fertilizer, more tools, more credit, and far more technical agricultural expertise -- that the existing farm program has been trying to spread across the rural economy as a whole. The scheme is to be a highly managed operation in the crash-program tradition, receiving detailed direction and priority attention all the way up the ministerial hierarchy.

Probably there is nothing inherently bad in such a program. Although it is hard to imagine that it will nurture farmers' enterprise and resourcefulness very much, the result may be a quick extra gain in output. Certainly, there is a need for the reinforced extension efforts the selected district program is attempting. But, while there may be no absolute over-emphasis on manipulation in the present farm program, there has been most emphatically under-emphasis on conditioning, environment-improving reforms.

[This is also exemplified in] one of the respects in which visiting Western economists are likeliest to differ sharply from the economic policymakers they encounter in the government of India -- their appreciation of the organizing capacities of self-adjusting markets. Westerners tend to admire the ethical and administrative economy that the market mechanism has as an instrument of social policy. The typical Western professional economist these days is quick to admit that the freely fluctuating market is a creation of man, not the Deity, and that government must supply it with a legal and financial framework, must police, participate in, and tinker with it structurally, and must supplement it with positive programs if it is to serve the general welfare. But he does prize it, so conditioned, as a device that can harness to the pursuit of the general welfare the self-seeking motivations of private individuals and groups. Recognizing the mass of interrelated decisions that must be taken to keep a complex economy operating and growing, he respects the self-adjusting market as a magnificent labor-saving mechanism.

By comparison, many senior Indian officials seem totally unexcited about the organizational feats that appropriately structured and disciplined self-adjusting markets can perform. In part, I think, this is a matter of general philosophy; many Indian leaders still are inclined to feel that self-seeking interpersonal and inter-enterprise rivalry is a rather beastly, culturally retrograde business. Probably more influential is the fact that many Indian officials, having accumulated a set of specific grudges against the performance of the narrow, imperfect markets that the Indian economy has known in the past, tend to project these complaints uncritically to market forces in general.

In any event, a principal weakness of Indian farm policy has been the inadequacy of its efforts, thus far, to develop the kind of market environment in and around agriculture that is best calculated to

stimulate productive expansion. The shortfalls have been more ones of degree than total oversights, and the Third-Plan document strikes some newly hopeful notes. Yet there is reason still to fear that particular market-building and market-rationalizing efforts may not be pressed with sufficient zest; that some of the positive interventions that the government must make into the rural economy are not being designed with an eye to whether they strengthen or stultify market mechanisms; and that there is inadequate appreciation of the extent to which broadened and quickened markets can multiply the impact of these interventions by generating mutually reinforcing trading linkages and production sequences.

Improving Market and Other Incentives

There is, to begin with, the matter of foodgrain prices. Despite all of the past and present concern about promotion of foodgrain output and marketing, there has been little effective use of the pricing mechnism for this purpose. This is not because of any official reluctance to tamper with market determination of foodgrain prices. On the contrary, the country has been beset by a considerable paraphernalia of food price policies and price controls, including a particularly confusing and disruptive set of inter-regional trading restrictions and official price differentials. Yet there has been little sustained attention to the possibility of using incentive prices for the stimulation of production.

Fortunately, from the viewpoint of urban consumers, what is most needed in the realm of price behavior to promote the marketing of foodgrains apparently is not an average rise in foodgrain prices but greater price stability and predictability, both from one year to the next and from season to season. In its discussions of price policy and of agricultural programs the Third-Plan document correctly emphasizes this point. It also clearly recognizes that, in order to improve price stability, the government -- rather than trying to impose direct controls -- needs to take a strong position in the market itself and promote price stability through its operations as alternately a major buyer and seller.

Part and parcel with the problem of disruptive fluctuations in agricultural prices is that of the marketing structure for farm products. The mass of smaller Indian cultivators characteristically have had access to their markets for cash crops only through a layering of middlemen, some of them full-time traders, others larger growers who have the income and credit resources to double as traders. These traders, who have had the financial staying power to speculate against seasonal fluctuations in farm prices, have accounted for the wide spreads between growers' and users' prices, often have reaped most of the advantage from seasonal upswings, and in general frequently have appeared to play a more exploitative role than a distributional one.

The traders' market power, moreover, has been heavily dependent upon the scarcity and usurious terms of the credit that traditional rural money lenders, often closely allied with the trading groups, have made available to the average cultivator. The latter, commonly unable to get credit for minor capital improvements or even production loans that would, for example, allow him to buy fertilizer, all too often has been trapped by his low productivity into seeking grievously burdensome consumption loans, especially for ceremonial purposes, from the local money lender. Once hooked, the farmer has been likely to stay permanently in debt to the money lender and perennially at the mercy of the trader, who stands ready to buy the marketable portion of his harvest at minimum prices.

The government of India's policy for breaking farm productivity free from the constraint imposed by these traditional marketing and financial institutions is to spread an alternative set of cooperative financial and marketing institutions through the countryside. This, it would appear, is a perfectly sound, if not the only possible, answer to the problem. Unfortunately, the cooperative movement urgently needs strengthening. But if this can be done, the "service cooperative" solution to the farm marketing and farm credit problems is probably the best one. It also is the best vehicle for facilitating growers' access to fertilizer and other essential supplies and for providing adequate local crop warehousing that is not subject to the control of exploitative traders.

The service cooperative is also an appropriate instrument for building another vital link in the system of expansive forces needed in the countryside: It can be the vehicle for a vigorous extension of retailing -- not only of farm implements, spare parts, supplies, and building materials, but of fabricated consumer goods -- into the remote reaches of the rural economy. There is no other means by which cultivators' appetites for cash (which in many instances largely are limited to the needs posed by rents, taxes, and indebtedness) can be so effectively whetted, thereby stimulating them to produce more and market more of what they produce. It would be a tragic miscalculation if fiscal conservatism caused Indian policymakers to hang back during the sixties from the vigorous promotion of such an expansion in rural retailing. It would be equally tragic if inadequate coordination among the elements of a comprehensive rural program caused a failure also to promote the local-industry development, the farm-to-market road building, and the other factors needed, along with more merchandising to farmers, for triggering a self-reinforcing advance in rural output.

If the market-building problem for agriculture is conceived as broadly as it should be, neither the problem nor its solution can possibly be confined to agriculture. The environment that is needed to actuate cultivators' production and marketing must entail not only more

retailing but more progressive local industries. It must include better roads and other public facilities. It needs a rural works program to construct these and other facilities, not only for the expansive effects that such a program can have on productive (including farm) capacity but for the withdrawal of redundant farm labor from agriculture and the lift that thereby can be given to the productivity of those cultivators remaining on the farm. Most critically of all perhaps, the needed agricultural environment must include a system for vigorously developing local marketing, industrial, administrative, and training centers that can exert a variety of impacts on the surrounding countryside.

The nonagricultural elements in this complex are just as dependent on a thriving increase in farm output and incomes as the latter is dependent upon them. The point is that any adequate rural development program must provide for a closely intermeshing promotion of both agricultural and nonagricultural elements in the same local areas if it is to have much hope of meeting the needs of either.

Agriculture and Community Development

I am suggesting that the essential difficulty with rural policy in India is its failure adequately to grasp a few key organizational principles that loom up amid all of the puzzling complexity of the Indian countryside. One of these is the need for making optimum use of self-adjusting markets as organizational devices. A second has just been emphasized: the need for a balanced, administratively integrated attack on the agricultural and nonagricultural aspects of the rural development problem. A third set of key issues has to do with the size of the focal rural development unit, with the balance to be struck between centralization and decentralization in Indian rural administration, and with the appropriate relationship in the countryside between grassroots institutions, on the one hand, and, on the other, leadership injected from the outside by government. These all are matters that are illuminated by the experience of the Community Development program, dating from 1951 and, experimentally, from before that time.

In the first place, in choosing its focal rural-development jurisdiction the program fixed automatically and uncritically on the individual village. From the very beginning it succumbed to what might be called the "village fetish" in Indian thought. By this I mean the unexamined assumption that the single village (average size, about 600 persons) must continue to be, because it always has been, the key social, political, and economic unit in Indian rural life. Community Development has proceeded on the hypothesis that all rural plans must be drawn, all action programs must be mounted, and all development scores must be kept on a village-by-village basis.

[The village fetish approach] has two damaging implications for the Community Development program and for the agricultural expansion efforts that are channeled through it. For one thing, it commits the whole scheme to excessive administrative fragmentation. The attempt to plan activities and measure results in 600,000 minuscule jurisdictions maximizes the volume of paper work and busy work within the system. The attempt to create this many centers of popular contact requires the quick recruitment and training of such a massive number of village-level functionaries that it is quite impossible, on average, for them to be persons of much status and experience, or even of high average intelligence and dedication. And the compulsion to have these lowest-level operatives engage in activities that are "balanced" or integrated on a village-by-village basis has forced them to become Jacks-of-all-trades. The average village-level worker, as one longtime observer of Indian rural affairs has said, winds up being a boy sent to do a man's job.

A second implication of the program's choice of the individual village as its target jurisdiction involves a matter of political and social tactics: The individual Indian village is typically a most unpromising arena in which to center the rural transformation effort. The whole of that effort, it must be remembered, is meant to bring about radical economic change and therefore challenges the status quo of the traditional society. In the process of stimulating expanding income, generating new activities and opportunities, and increasing rural occupational mobility, it breaks down old status patterns. It threatens traditionally privileged groups with a loss of relative power and prestige at the same time that it offers them opportunities for absolute economic gains. Accordingly, it must expect to generate some vehement local opposition.

The ultimate tactical problem of Indian rural policy is posed by the fact that throughout much of the Indian countryside grass roots political leadership still is largely the prerogative of those traditional local social and economic elites that are instinctively resistant to change. By centering its focus upon the reconstruction of the individual village qua village, the reform effort challenges the forces of rural reaction on their own terms and on their own ground at their points of greatest resistance. The fact that such is precisely what the Community Development program attempts accounts very considerably for the air of ineffectiveness that too widely characterizes it.

Conversely, the whole enterprise of rural development becomes more promising to the extent that the venue of the effort can be shifted to a new, enlarged frame within which new activities and new institutions can be built in a fashion that minimizes the overt displacement of traditional village institutions and village leaders. Gradually, under such an approach, many of the latter can be persuaded to assume constructive

roles in the new pattern; and the rest, without precipitous loss of face, can be left to subside into neighborhood anachronisms.

In its pattern of "development blocks," newly established in most of India but following the lines of the traditional taluks in parts of the South, the Community Development movement already has the framework for such a centering process. But, thus far, the block has simply been conceived of as a collection of villages -- as an administrative convenience for facilitating the transmission of messages, materials, and personnel from state and district headquarters, on the one hand, to the operating (village) level, on the other. In a "centralized upward" scheme the block itself would become the primary operating unit. Its specialized services and personnel, of course, would reach out to its constituent groups and persons, who would continue to reside in villages. But instead of being an aggregation of developing villages, the block per se, replete with a reinforced center, would be the community to be developed, of which traditional villages, insofar as they retained their identity, would become the neighborhood components.

But this is only one-half of the centralization-decentralization story. Equally urgent is the Community Development program's need for decentralization downward. The traditional British-Indian administrative system, to which the Community Development program has been made fully to conform, doles out little discretionary authority to its lower echelons. Moreover, there is a deep status cleavage between Indian Administrative Service personnel, who usually have not been posted below the district level, and the rest of the government service, which has been left, among other things, to man local rural development posts. The result is an echelon of Block Development Officers who have little or no scope for practicing the imaginative, innovative local program development that their areas need; are busied too much with detailed accounting upward; are obsequious in their deference to district officers; are accorded little status by the traditional leaders of their own communities; and have very limited career horizons. Not surprisingly, the average caliber of these officers leaves something to be desired.

These last few sentences refer not only to the impersonal allocation of powers and responsibilities among different levels of the administrative structure but also, implicity, to the vital question of how to supply adequate reform leadership to the countryside in a manner that pays adequate deference to the principle of local self-determination. This is another of the key organizational questions over which India's rural policies of the fifties have exhibited a disturbing fuzziness. On the one hand, overly centralized administration has combined with the village fetish to down-grade the newly created position of Block Development Officer, which represented the most hopeful vehicle for injecting a catalytic new leadership into many tradition-ridden localities. On

the other hand, there has been elaborate deference, from the beginning of the community development effort, to the concept of grass-roots self-determination -- understood to mean, of course, village-by-village self-determination. The result thus far of reviving village panchayats (or councils) and other traditional local-governing institutions too often has been to entrench village elites in their traditional power positions while the newly provided reform leadership has been managing, at best, a limited growth.

A clearer view of the dynamic of democratic rural development would suggest that the injection of the most vigorous possible new leadership -- generously endowed with power, discretion, and resources for creating incentives -- into an orbit other than, and larger than, the village is by all odds the most important contribution that government can make to the rural development process. This, and not agricultural separatism, is the single best answer to the Community Development program's problem of agricultural ineffectiveness, just as it is the best way of energizing the whole operation.

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INCREASING AGRICULTURAL PRODUCTIVITY IN TROPICAL AFRICA

W. O. Jones

[From a paper presented at the Nyasaland Economic Symposium held in Blantyre in July 1962.]

[Though this paper prepared for the Nyasaland Economic Symposium is primarily concerned with the means of raising agricultural productivity and rural incomes in African economies, many of the points made by Dr. Jones are applicable to the transformation of subsistence agriculture elsewhere in the underdeveloped world. A short description of the Symposium will be found on pages 48-49.]

These are excerpts from the original paper.

Agriculture differs technically from manufacturing because its characteristic input, land, is necessarily immobile, heterogeneous, and extensive, and because the supply of three other essential inputs -- water, sunlight, and warmth -- are usually uncertain and uncontrollable. It differs also because of the special safeguards that have historically been accorded to the individual's rights in land in many societies, and because it is possible for farmers to achieve a measure of self-sufficiency, though at high cost, that is not possible for craftsmen, merchants, or laborers. Probably because of the special character of the natural inputs, economies of scale are realized in agriculture by [producing units] much smaller in size than in manufacturing, transport, and construction. The considerable variation in soil and relief, even on relatively small farms, and the need to react

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promptly and appropriately to unpredictable changes in temperature and moisture greatly complicate the number and kind of day-to-day decisions that must be made in most types of farming. Costs of management therefore rise rapidly as farm size increases beyond the point where the farm manager can himself take part in work in the field. Traditions of security of tenure, and the family's potential ability to feed the farm family, have made it possible for inefficient small operators to resist effectively economic pressures which in other occupations would either have forced them to work more productively or to seek less demanding employment. Moreover, large owners, because each tract of land is unique in site if not in quality, have enjoyed various monopoly advantages which permit and sometimes encourage uneconomic use of their properties.

Technical differences between agricultural production and other kinds of economic activity, and the dominant economic position agriculture has occupied over most of human history and that it still occupies for most of the present population of the world, are sufficient reasons why it should receive special attention in national economic decisions. The general conditions for agriculture to prosper are relatively simple, but they can be implemented only by taking into account the complex reality of each specific geographical and cultural environment. In the present paper an attempt is made to set forth these general conditions for economic progress in agriculture, and to call attention to some of the restraints under which they may have to labor and some of the conflicts with other social objectives which may arise. No attempt will be made to lay down a specific development program for the agriculture of any particular country, but attention will be directed to some general characteristics of tropical African agriculture which must influence development plans. Specific national decisions can only be made in the light of each nation's resources, both natural and human, and of its political, social, and economic aspirations.

Conditions for Efficient Production

Efficient production can be achieved in agriculture if the following conditions are met:

1. Economic motivation. -- If some farmers are motivated by a desire to increase their command over goods and services, including leisure activities, and are able rationally to perceive the means to this end. If producers and consumers are not interested in increasing their real incomes, if their economic activities are uninfluenced by changes in cost and price, if they are unable rationally to relate present effort to future reward, and if they are concerned only with immediate satisfaction with no care for what may come tomorrow, then any attempts to organize an economy by the constraints of the market will be in vain, whether the market is one in which all prices are arrived at by the free play of economic forces or by decision of the state.

Fortunately, there is ample evidence all round us that many African subsistence farmers, even those remote from markets and urban centers, display in their economic activities attitudes of the same sort as are postulated by the economic theorists. Of course no man is ruled by economic drives alone, and of course the relative influence of the various determinants of human behavior varies from one individual to another. This does not impair the theory, for all that it requires is that some individuals experience some degree of economic motivation.

Although the state cannot bring economic motivation into being when it does not already exist, it can heighten the degree to which economic considerations affect individual decisions. This can be done in two ways: by maintenance of a system in which economic rewards are more nearly proportional to economic contribution, and by familiarizing consumers with the various kinds of economic satisfaction in the form of goods and services that may be available to them. Rewards commensurate with contributions will follow if the access conditions discussed below are met; these conditions will also increase the consumers' familiarity with the full range of satisfactions possible to them by the widening of consumer choice which equal access to consumer goods implies.

2. Access to the factors [of production]. -- The condition that all members of the economy be able to acquire or use factors of production on the same economic terms is necessary in order to permit continuing rearrangements of inputs into more efficient combinations, and to assure that their use is directed by individuals best able to do so. It is specifically directed against systems in which some individuals, by reason of race, birth, religion, or other non-economic condition are afforded priority in the use of land and capital and in the employment of labor, or special concessions in payment for their use. It is intended to make ownership and use dependent on the individual's economic contribution as this is measured by the market or by the state.

Equal access does not imply that access is free, nor does it carry the implication that every member of the society shall be endowed with equal shares of the factors. In particular, it is not to be confused with the idea that every man has a right to land of the same amount and quality, or in fact that he has a right to land at all except as he acquires this right through performance. And it denies the individual's right to hold land in uneconomic use. It does not necessarily imply private, individual ownership of land, although this may be the easiest way to achieve equal access to this factor. Nor does it necessarily imply owner-operation, for in some situations there may be considerable gains in flexibility by separating these two functions, either through a system of share-tenancy under which both owner and farm operator share the risks of farming, or through cash rents determined in the same way as other prices. The condition of equal access does, of course, imply tenancy subject to economic use of the land, and is the antithesis of

systems which insure tenancy for life or in other ways tie the farmer to a particular piece of land.

Access to financial resources should be determined by the prospects of the enterprise and the reliability of the prospective borrower. Production credit should be available to farmers on the same terms as it is to other borrowers. If monopoly control of credit or ignorance on the part of lenders of the economics of farming causes interest charges to be above a freely determined market rate, farm operators will be forced to forego the most efficient organization of the firm in order to conserve financial capital. If credit is made available to farmers at subsidized rates below the market, farms will tend to waste capital and in this way adopt a less efficient organization of production.

A special problem of farm financing is to protect the farm firm against random disaster beyond its capacity to meet, such as may be caused by successive years of abnormally bad weather, or by sudden large declines in prices of farm products. Involved here is more than concern over the welfare of the farm family. Risks too big to be borne by the individual enterprise may destroy an otherwise efficient operation and thus present society with an avoidable cost of reorganization. When such risks can be borne more broadly, perhaps by the entire society, their cost can be reduced. This is an argument for so-called "disaster insurance"; it is not an argument for continued support of farm prices or for subsidy to agriculture.

If terms of access to the factors of production are to be the same to all, it may be necessary to permit collective bargaining over wages, possibly over rents. But when associations of workers, employers, traders, or lenders, whether labor unions, cooperatives, or cartels, are permitted to restrict entry to production or marketing, they are in fact making access to the factors conditional on non-economic criteria. Under these circumstances the state has an obligation to intervene in order to preserve the openness of markets. Monopoly is most often thought of as a burden imposed on farmers by their suppliers and by their customers, but it can also be imposed by farmers through cooperative marketing organizations, agreements about wage levels, and through privileged control of land. Monopoly power used by farm operators against others reduces efficiency of production in just the same way as does monopoly power which is used against farmers.

If farm managers should be free to employ the factors of production in the amount and at the time that they wish, the owners of the factors should have the same freedom. For labor this means that employment should be entered into freely, and that no one should be kept in employment if he wishes to leave it. Contract and indentured labor are just as inconsistent with efficient combination of the factors in production as are other restraints.

3. Access to markets. -- In most countries, the principal restraint on individual access to markets is imposed by market traders themselves through the agency of trade associations, rings, or monopolies. In parts of tropical Africa, and elsewhere in the world where the races receive differential treatment, restraints may be imposed by custom, even by law. This impedes the functioning of the entire market system. Markets open to all, and prices freely determined by the customary bidding and offering of the open market are a necessary condition for optimum use of resources. Perfect markets and perfect market pricing can be approximated only under very special circumstances, such as appear now to prevail in some of the organized markets for grain futures in the United States, but the state can greatly improve the functioning of markets for agricultural commodities in tropical Africa by measures that are relatively simple and not very costly.

First priority should probably be given to collection and dissemination of current and accurate information about market prices. This alone will go some distance to combat monopolistic price-fixing and restraint of trade which thrives on the suppression of market information. Measures to insure enforceability of contracts, and provision of reliable government grading and inspection services, will reduce the cost of long-distance trade, if only because they can eliminate the need for the seller to accompany his merchandise to the point of delivery. These measures, too, will weaken the control of traders associations. Direct action to prevent and destroy monopoly in restraint of trade is more difficult, as the American experience has shown, but aggressive action by the state can end the most flagrant abuses.

4. Access to knowledge. -- A man does not have to be able to read and write in order to operate a farm successfully. He does need to know intimately all of the details of his business, including the various techniques of production, the costs and prices of alternative inputs and outputs, and the forces that are likely to cause them to change over the course of the planning period.

There are many ways in which this kind of knowledge is acquired. A great deal is learned from doing and from watching others, hence the effectiveness of demonstration farms and the influence in some African countries of European estates.

The present cultivators of African farms and gardens possess a great store of knowledge that has been handed down through the generations. Its utility has been proven by the achievement in feeding the population well enough to permit its increase. New crops have been incorporated into the agricultural cycle as they become known, and new techniques adopted when they seemed suitable. In any plans for the improvement of African agriculture it is of the first importance to build on this existing knowledge. The new techniques now required will be most effective

if they are combined with the older methods rather than being substituted for them.

Knowledge of new and better methods requires continued research by agronomists and agricultural economists, and this research will be most fruitful if there is constant communication between the research worker and the man on the farm. An active and conscientious agricultural extension service, staffed by workers who understand existing farming practices as well as those being developed at the experiment stations, is probably the best means for propagating new knowledge and for guiding research along productive lines.

Knowledge of new crops and new farming methods, knowledge of market prices and of the commodities offered for sale, do not depend on formal education nor on the ability to read and write. Literacy and "general education" are not a prerequisite for economic achievement. They bring values and satisfactions of their own, but in many circumstances they should not be set ahead of the kind of practical education that enables people to earn a living. It is extremely doubtful whether the goal of mass literacy should be set ahead of education in productive techniques and in the workings of the market.

5. Group responsibilities. -- Increased reliance on the exchange economy and lessening of non-economic claims on the factors of production inevitably require that new social arrangements be devised in order to provide for individuals who are by nature unproductive or improvident, or whose incomes are cut off by illness or natural disaster. In the traditional society, where membership in the society itself establishes a claim on income, this situation is taken care of by sharing within a relatively small group. In the exchange economy, with its increased emphasis on individual performance, the unfortunate can best be cared for by some larger community, usually the state, but possibly a social or religious fellowship or some political unit smaller than the state.

Group concern over the misfortunes of its members need not reduce the economic efficiency of the system significantly as long as it is limited to individuals in real distress, and as long as minimum income requirements are set realistically. Unfortunately, when this burden is assumed by the state, pressures are apt to be strong to revise upward notions of minimum income, and to extend state aid to an ever-increasing part of the population.

Generators of Growth

Sustained rapid growth of the economic product of a society cannot be achieved simply by providing the circumstances under which it is possible. Some individuals must be able to recognise and to take advantage of opportunities for development; furthermore, such opportunities must exist. Some may arise from chance circumstances essentially outside the

economy, some from shifts within the economy itself, and some may be induced or created by governmental planners.

It is essential, of course, that the economy be so organized that its members can employ their capacities for enterprise and organization to the best advantage, and they will be better able to do so to the extent that the conditions of equality of access to factors, markets, and knowledge are achieved. As the countries of tropical Africa move from colonial dependencies to independent self-governing states, perhaps the most important problem they must solve in their task of creating modern national economies is to identify and employ the potentialities for economic leadership of their own populations. To borrow a phrase from the political scientists, the nations must construct a kind of society in which the "economically relevant men" can function most effectively. Bankers and traders, farmers and processors, if allowed freedom to pursue their own economic ends under a society of law and order, will serve as catalysts to set in more rapid motion the economic processes of the system. Fertilizer salesmen who persuade the farmer of advantages of particular kinds of crop dressings (and who are kept honest by their competitors and government regulations) can be just as effective in educating farmers to the uses of nitrogen, potash, and phosphate as can governmental agricultural workers. Produce dealers seeking supplies for a market they have identified and developed can be persuasive teachers of farmers who could not find the market opportunity themselves. Processors who offer premiums for standards of product that can be handled more economically in their plants, and bankers who carefully scrutinize production plans and share their experience with prospective borrowers also contribute forcefully to the education of the farm operator.

The process of improving access to markets may in itself serve as a powerful generator of increased output in agriculture and set in motion a train of changes all of which are directed at increasing output and lowering costs. The reduction in transport costs and consequent increase in the prices farmers can obtain for their products that result from the building of a road linking them with central markets can completely change the orientation of a community's farming. The history of modern agriculture is filled with stories of the impact of roads, canals, and railroads on hitherto isolated communities. The part played by motor trucks in the countries of Africa today is too well known to require elaboration here. What has been achieved to date, however, is probably no more than the barest beginning of the task ahead. Cheaper transport has an impact on almost every aspect of society, and is the principal device which will knit the new national economies together. The part played by other forms of communication, and by the development of better-organized markets for raw produce and finished goods reinforces and complements the work of improved transportation. Knowledge of better ways of farming and of better crops to grow are also a part of the communication process. Any and all can spark the kind of chain reaction which will sustain economic growth.

For maximum effect on organization of the factors of production, change in the economic environment should be large enough to be easily perceived. In the same way, demonstrations of new techniques are effective when their consequences are obvious, that is when they are large enough to be seen at once. Gradual changes, even though persistent over time, may be unrecognized long after their total effect has been relatively great; if the same change were achieved in a short period of time, its effect would be observed promptly.

Rising incomes themselves stimulate economic growth by providing the means for increasing economic output and the will to do so. Acquaintance with new consumer goods and with new ways of life raises the standard of living or standard of consumption, in the strict sense, above the level of living currently enjoyed, and thus increases the incentive for economic production and income. (Danger lurks here, too, if standards are raised too high above the existing level, or if the means to achieve higher standards are frustrated or made too onerous.) At the same time that rising incomes lead to rising expectations, they provide. the means to realize them in the form of earnings in excess of customary requirements. The successive patterns of income, saving, and standard of consumption which characterize the economic life of the individual in industrialized societies, may also be followed by entire economies.

Beyond the control of society, yet sometimes most important of all, are potential generators of growth in the form of adventitious discoveries of new resources, invention of new products and methods or of new uses for familiar products, or shifts in consumer tastes. These bring most benefit to those individuals who are alert to the new possibilities they open, and to those societies in which information is disseminated rapidly and the change is easy. Their impact is inhibited by overplanning, by centralization of decision-making, and by monopoly. They are most likely to be seized by an agriculture made up of many small commercial farms that are in constant contact with the market and that are not hampered in their planning by ponderous management and single-minded investors.

Specific Recommendations

In this final section, an attempt is made to set down very briefly some specific recommendations.

Improvement of the marketing system. -- The dominating characteristic of the new African national economies is their disjointedness, their lack of internal limbs and connections. The first step to increase the production of agriculture and to bring the subsistence sector more fully into the exchange economy should be expansion of the internal transportation system, followed by improvement of the marketing system generally.

1. In particular, the road net needs to be extended into every part of the country before much attention is paid to improvement of existing roads.

2. Detailed studies should be made of the existing marketing system to locate restraint on free movement of commodities and imperfections in the processes of price formation.

3. Information about prices of farm products in the major markets should be collected and disseminated frequently and regularly, preferably by radio.

4. Produce inspection and certification services should be provided at the larger markets, but their use should be voluntary.

5. Enforceability of contracts and accountability of commission merchants to their principals should be insured by law.

6. The market should be relied on as the primary guide for production.

7. The state should intervene in price-making for farm products only to --

(a) prevent monopolistic pricing, or

(b) insure farmers against abrupt decline in prices.

8. Licensing of traders should be required only in order to insure their financial responsibility and to control unethical behavior, not to limit their number.

Education. -- Improvement of market connections will make farmers more receptive to information about improved techniques of production and processing, and will increase their interest in consumer education. Much remains to be learned about the most effective methods for organizing agricultural production in the countries of tropical agriculture, but existing knowledge, if put into practice, could nevertheless result in significant increases in productivity.

1. Primary reliance in agricultural education should be placed on instruction by word of mouth and by example. The principal instruments should be extension workers, farm institutes, demonstration plots and farms, and the radio.

2. Only those techniques which have been thoroughly tested in the field should be advocated in the general agricultural education program.

3. Companies which sell fertilizers, improved seeds, pesticides, and farm tools should be permitted and encouraged to assist in the task

of introducing improved techniques to farmers, so long as they do not misrepresent the product which they sell.

4. Consumer education, including nutrition, hygiene, housekeeping, and homecrafts, should be a part of the task of the farm extension workers, supported by radio broadcasts. Conservative radio advertising can help the consumer to know what products are available, what they cost, and what their uses are.

5. Wholesalers and retailers should be encouraged to acquaint consumers with the range of goods that can be obtained. If low total volume of sales makes it uneconomic for shops to stock a wide variety of merchandise, the device of ordering from catalogue can greatly expand consumer choice. Here the state can assist by facilitating the transmission of orders, payments, and merchandise.

6. Agricultural fairs and exhibits can be an effective device in fostering technological competition in production and housekeeping, and in instruction. They can also be a place where consumers become acquainted with new products.

7. In the educational program, as in the development of marketing and transportation, results probably can be obtained by concentrating successively on limited areas where conditions are more or less like those of the entire country.

Research. -- Despite the considerable amount of agricultural research that has been carried on in tropical Africa since World War II, and the wealth of knowledge about agriculture in the temperate zone, much needs to be learned about African conditions, particularly about the technology and economics of production of food crops by smallholders. A program of agricultural education cannot be expected to proceed very far without support from a vigorous program of agricultural, farm management, and farm marketing research.

1. An agricultural research program can only be effective if there is continuing communication between research workers and practicing farmers. Extension workers, therefore, must be able to listen to farmers as well as to talk to them, and they must also be able to tell the research worker what they have learned.

2. Efficient farm production involves both application of effective techniques and economic combination of resources. Economists and farm management and marketing specialists should work closely with the natural scientists in research and in education.

3. The most promising directions for research effort directly related to production at present appear to be:

(a) Mechanization of barnyard activities;

(b) Methods for increasing yield per acre, including use of fertilizers, pesticides, improved varieties, better plant spacing, better crop sequences, and better timing of field operations;

(c) Concentration on the problems of relatively small farms, rather than on estates;

(d) Specialization in production rather than mixed farming; and

(e) Ways of increasing total output by altering the product mix in favor of higher-value crops, livestock feeding, and dairying.

Land. -- One of the more difficult problems faced by African agriculture is redefinition of rights to land use. The preferable solution from the standpoint of economic efficiency is probably some form of individual freehold, although rights of ownership are likely to be defined differently and to be somewhat more restricted than under traditional Anglo-Saxon law. Although individual ownership may be accepted as the eventual form of land tenure, the state should not attempt to introduce it abruptly, nor to press heavily against strong opposition for its adoption.

1. The state should facilitate the change from traditional land tenures to individual ownership as economic forces make this change appear desirable. In particular, it can make it easier for individuals or groups to register title without requiring it of those who are reluctant.

2. The state should proceed as rapidly as possible with topographical surveys and with mapping of soils and land use.

3. No legal restrictions should be imposed on the sale or mortgaging of land, nor upon the form of tenancy agreements so long as they are freely entered into and terminable by either party.

4. Problems of soil and water conservation can best be dealt with by local or regional conservation districts, sponsored by the state, but controlled and financed eventually by their members.

Capital. -- Although capital required for reorganization of the farm enterprise will be forthcoming in part from private sources, especially from the saving of farmers (as on the cocoa farms of West Africa,

for example), it will undoubtedly also be necessary for the state to assist in the establishment of lending institutions and sometimes to assume this function directly.

1. Farm credit, both for production and for long-term development, requires financial agencies especially intended to serve farmers and staffed by officers who are familiar with the problems of agriculture. These agencies may be divisions of general lending institutions; they are more apt themselves to be institutions concerned almost exclusively with agriculture.

2. The state should supervise the operation of farm credit agencies in order to prevent monopolistic exploitation of farmers, and it may have to regulate their lending policies. Licensing of banks and mortgage companies, as of traders and processors, should be solely to prevent unethical practices and to assure financial responsibility, not to limit competition.

3. If the state can avoid the administrative burden of itself providing farm financing, it probably should do so. But when private investors or cooperatives are unable or unwilling to engage in this kind of banking at economically reasonable rates of interest, it may be necessary for the state to establish its own farm credit banks.

4. Group purchase of heavy equipment, including tractors and harvesting machines, is one way to enable the small operator to remain competitive with large-scale farmers.

5. Plants for primary processing of farm products need not be owned and operated by large plantations.

Relief of distress, and aid in transition. -- The state has an obligation to come to the aid of its members who may be in distress. It may also be obliged to render to individuals in the process of change from a traditional to a modern economy assistance beyond that involved in providing the economic conditions which make this change possible.

1. Direct assistance should not be perverted into an instrument of control.

2. Minimum standards of living should not be conceived of in absolute terms, but relative to the level of living of the mass of the population.

3. Devices for raising or supporting incomes in agriculture should be completely divorced from price supports, which typically give added income to those who need it least.

4. Subsidies to assist farmers in transforming their farms, or in changing their occupations, should be offered only when the new organization or the new occupation is, or soon will be, economic without subsidy.

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THE NYASALAND ECONOMIC SYMPOSIUM

This Symposium was held from July 18 to 28, 1962, in Blantyre, Nyasaland, under the sponsorship of the Government of Nyasaland. It was conceived, organized and chaired by the late D. K. Chisiza, at that time Parliamentary Secretary to the Ministry of Finance and Secretary-General of the Malawi Congress Party. His untimely death in a motor accident is a great loss.

The Symposium consisted of 23 experts on development from India, Western Europe and the United States, and over 50 African experts and observers concerned with economic and social development. The purpose was to relate the general principles of economic development specifically to the development problems of the African countries. Each of the foreign experts prepared a paper -- distributed to the participants prior to the Symposium -- in response to a question on an important aspect of African economic development. These papers were summarized at the sessions by their authors and then discussed by the participants. Subjects covered include agriculture, industry, education, manpower, commerce, fiscal and monetary policies, cooperatives, and planning.

In an address at the Symposium, Mr. Chisiza discussed some of the major political and social problems facing the new African nations, and eloquently explained the traditional values of African society which they are striving to realize in ways consistent with modern needs and limitations. Mr. Chisiza asserted that "an insight into these problems and emotions is essential if foreign experts are to give effective and acceptable advice." He concluded:

"If we do not accept the good advice of foreign experts, if we are lackadaisical towards some of their brilliant ideas, and if we do not get on well with some of them, it may be because of some of the things which have been mentioned above. The experts do not stand to lose

anything if their advice is not acted upon. We would be the losers. However, since most experts want to feel, as we would expect them to, that their efforts to help fellow human beings are bearing fruit, they might do a lot worse than take off time to gain insight into our aspirations, outlook and problems so that they might be better equipped to render advice which will be readily acceptable."

The papers presented at the Symposium will be published by Basil Blackwell, Oxford, England, later this year.

Excerpts from two of the papers will be found beginning on pages 35 and 77.

AGRICULTURE

/Science, Technology, and Development: United States Papers Prepared for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas, Volume III, Agriculture; Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., 1963, x and 262 pp., US$0.75./

The ways in which science and technology can contribute to the advancement of agriculture in the less developed countries are discussed in this volume of papers prepared for and distributed at the UN Science Conference in Geneva in February 1963.

The first group of papers covers the institutional and social aspects of agricultural development, including land tenure and use, motivation and productivity, the interrelationships of the factors of production (land, labor, capital, etc.) within agriculture, the relation of agriculture to industry and other sectors in a developing economy, and the improvement through education, training and extension work of the knowledge and skills of the agricultural population. Improvements in nutrition form the subject of the second group of papers dealing with dietary needs and practices, and international cooperation in nutrition research and planning. Five groups of more technical papers then cover the main aspects of the development of land and water resources, crop production and protection, animal health and breeding, forestry, and fishery resources and production. In all, 23 papers are included, each written by one or more U.S. experts from government agencies, universities and private research institutions.

HOUSING

In recent years, housing has come to have an increasingly important part in development plans. The growth in urban population, both by natural increase and by migration from the countryside, the desire for improved living conditions, and recognition that better housing contributes to increased productivity have combined to emphasize the need to provide more and better living quarters in urban and industrializing areas. The betterment of rural housing has tended to lag behind urban developments but village programs, often involving self-help arrangements and improvements in traditional methods and materials, have been started in a number of countries. At the same time, new types of housing and home finance have been explored, and research has been initiated into the technological, sociological and public health aspects of improved planning and construction of housing projects.

This section contains selections from a volume on housing in the less developed countries prepared by experts for the Subcommittee on Housing of the Committee on Banking and Currency of the United States Senate. The selections deal with the relationship of housing to economic development; a proposed method for mobilizing and augmenting private savings to promote better housing and increased home ownership among middle income groups; and some of the principles essential for the success of aided self-help home construction programs for low-income urban and rural groups. Published in March 1963 under the title Study of International Housing, this volume also contains other papers on the economic and socio/political aspects of housing; the types of assistance available to less developed countries for improving their housing; building techniques and materials; aided self-help programs; cooperative housing; various types of housing finance and thrift institutions for financing home ownership; slum clearance and public housing programs; educational and training programs in the field of housing; and local government organization for housing improvement.

Also included in this section are a summary of the results of a preliminary survey of the uses of plastics in house construction in less developed countries; a description of a continuing series of pamphlets published by the U.S. Housing and Home Finance Agency on new building methods and ideas for less developed countries; and an announcement of a new bibliography on housing.

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RELATIONSHIP BETWEEN HOUSING AND ECONOMIC DEVELOPMENT

Edward D. Hollander

/From Study of International Housing; U. S. Senate, Committee on Banking and Currency, Subcommittee on Housing (88th Congress, 1st Session); March 1963, pp. 19-25. For sale by Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 461 pp., $1.25./

This is a reprint of most of the original paper.

Miserably inadequate housing is universally prevalent in developing countries, and the betterment of housing is an integral part of the complex process of development. The provision of more and better housing may seem to be social rather than economic development, in the sense that it is aimed primarily at individual and social welfare, rather than directly expanding productive capacity, productivity, and production. But to those who see the development of a people as a unitary evolution of interrelated processes, improvement of housing, as an element of the condition under which people live, is both an instrument and a consequence in the spiral of development. The need for better housing is universal and manifest. The active desire for better housing is itself an expression of social and political development; it is also a powerful incentive to economic development. The process of providing better housing is a many-sided exercise in economic development. And the achievement of better housing, in turn, has profound effects on social organization and political attitudes which are carriers of economic development.

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Housing in Relation to Institutions for Development

Housing is an expression of the manner of living which cannot be changed simply by transplanting people from poor housing to good. Changing the manner of living means, first, an awareness of standards which lead to changes in modes of education, health, and consumption generally, as well as housing. These changes in standards and attitudes are expressed in personal and institutional forms which are instrumental in economic development. The most important of these, from the point of view of economic development, is the motivation for saving which can be generated out of the desire for better housing, and the possibility that it might be obtained.

It is this, of course, which has led to the emphasis in the U.S. programs on the use of AID funds to help savings and loan institutions. These institutions can provide the link between the demand for a house and the institutional framework in which the individual may save for it. In the same way, the demand for housing has been used as the motivating force in fostering the development of institutions of cooperation and self-help, whose significance to economic development is by no means limited to housing but extends also to agricultural development, community development, and the strengthening of artisan industry.

The evolution of institutions and attitudes such as these, so important to the processes of economic development, is not swift or sudden, nor will it result from housing programs alone. We have learned from experience that no single element in development by itself will advance us very far toward the total goal. Lacking other elements in the development process, health programs which save lives may also spread poverty and add to the burdens of development. Education which raises hopes and skills beyond the capacity of the economy may thereby breed frustration and disillusionment. Similarly, we find that clearing slums and moving people to a new physical environment without attention to changes in the social and economic environment may destroy as many values as it creates. Thus, housing in relation to social and economic development should be looked on as part of the transition from a traditional to a modern society. In this context it is related to economic development in direct and specific ways.

Housing in the Investment Program and Price Stability

In the overall development program, housing is a form of investment competing with other forms for a limited supply of investment funds. Housing has a relatively much higher ratio of capital requirements to annual return (capital-output ratio) than does a country's development program as a whole. Housing falls between the quick returns of agriculture and industry, on the one hand, and the very slow returns on investment in social capital such as health and education, on the other. Invariably

this limits severely the amounts that can be allocated to housing in the investment programs, especially in the early stages of development when the demands for immediately productive investments and for transportation, communication, and education may be relatively great. Since it can neither substitute for imports nor stimulate exports, housing is not one of the forms of investment that can claim a high priority for reasons of balance of payments; though normally expenditures for housing are predominantly for local labor and local materials, substantial amounts of imported materials may also be required.

By the same token, because the major part of the funds invested in housing are expended on land, labor, and locally produced materials, in order to avoid inflationary effects from investment in housing, it is necessary to exert the maximum effort to mobilize equivalent savings, either from private sources or from budgetary funds of the government financed by revenues. This alone would set a rather stringent limit on the ability of most underdeveloped countries to finance housing on a large scale. On the other hand, it offers a unique opportunity to mobilize private savings that would otherwise be immobilized or unavailable for productive uses. The demand for better housing is so widespread, especially among the urban middle and working classes, and housing offers such good investment opportunities that, under favorable circumstances, a well-planned and well-organized housing program may call forth a surprisingly large volume of internal funds. This has been the experience in a number of countries.

It is characteristic of many developing countries that the rapid growth of the capital and other principal cities has generated something of a boom in high-priced housing for the more privileged classes, both national and foreign. This has been fed by speculation in land and a chronic shortage of housing for the well-to-do and the middle class, returning high rates of return to enterprising investors. At the same time, the establishment of industries has resulted in heavy migration of underemployed rural manpower to the cities. But because of the low-income base of the mass market, housing as an industry and as an investment has rarely spread into the low-priced ranges or realized the economies of large-scale development and building, except on the initiative of the government and with government support. As a result, the housing supply has not kept pace with the urban population, and rising rents are generally a conspicuous element in the rise in the cost of living. Thus we are confronted with a circular relationship: if the pace of home building outruns by much the volume of savings for investment in housing, the results are inflationary; on the other hand, if the supply of housing lags very far behind the effective demand, the price of housing rises, which is also inflationary. The matter of saving is crucial.

Housing and Saving

In many countries where money markets are nonexistent and savings institutions are rudimentary, housing offers an opportunity for the motivation and channeling of saving which may otherwise be lacking. Unlike more remote and sophisticated forms of investment, housing is tangible, near, and conceptually similar to the familiar investment in land as such. Moreover, the desire of an individual for a better place to live may itself stimulate saving or unlock hoarding. It is widely observed that even very poor countries generally have greater liquid resources than has been suspected, and that these can be mobilized if motivation and institutions are provided. This has been the case, for example, in the formation of credit unions to protect individuals from excessive interest rates.

In the case of housing, more often than not the conventional mortgage markets are lacking, but mortgage banks, raising capital through sale of guaranteed savings certificates, have provided builders or buyers with mortgage funds. The effort to capitalize on the desire for housing has led to the formation of savings and loan associations in which the relationship between saving and borrowing is direct and clear. But the financing of housing requires more saving than the prospective borrowers alone can be expected to accumulate. If the saving is limited to prospective borrowers, for example people saving to accumulate a one-third downpayment (or more) on the promise of being able to borrow the rest, the pool of funds for financing homes will accumulate slowly and the stimulus to housing will be diminished and delayed. On the other hand, to the extent that there are more savers than borrowers, or that funds for lending are injected from outside, more investment money will flow sooner into housing. Pump-priming money from AID or other foreign sources not only helps to provide the initiative but also hastens the accumulation of a pool of savings for financing mortgages. In either case, it should be noted, payments for purchase of housing, whether before construction or after, are a form of saving and an important step toward popularization of the saving habit. In the common case of the inflated development economies, housing offers a form of saving which is also a hedge against inflation, while at the same time the saving itself is a counterinflationary influence.

Housing and Industrial Development

Even where housing has been small scale, high cost, and high priced, it has been one of the early forms of industrial development and a stimulus to a variety of auxiliary industries and trades. The construction industry itself, as it becomes modernized, approaches the forms of activity and organization characteristic of industrial production and has thus served as a breeder of industrial techniques and skills. The widespread local occurrence of building materials in underdeveloped countries

and the high transportation costs on imported materials have encouraged local industries for the manufacture of lumber, cement, brick, reinforcing metal (sometimes from local scrap), pipe, asbestos cement, corrugated roofing, etc. The opportunities created by the demand for these materials encourage the development of enterprise, management, and markets for small indigenous industries so important in the development process and in the growth of the middle class.

Equally important is the role of the building industry as a breeder of skills and a developer of manpower. From architects, engineers, managers, and works superintendents, through a wide range of technical and craft occupations, building and its auxiliary industries offer opportunities for training and employment which serve as an important step in the transition from the traditional forms of production to the organization, precision, and discipline of modern industry. Often construction is among the first industries to introduce workmen to comparatively well-paid jobs and the chance to raise their level of living. In this respect, it strengthens both the economy and the society.

The degree to which housing is limited by saving for investment, and conversely, the degree to which housing is a spur to development, will depend on the kinds of housing a developing country chooses to build. Housing of the more elaborate kinds requires greater investment and greater saving efforts; it also offers greater scope for the development of enterprise, industry, and skill. On the other hand, more modest kinds of housing, more in keeping with indigenous standards, can be built in greater numbers with less impact on the economy. But even modest housing programs, especially if they are on a sizeable scale, require substantial inputs of labor and materials, and will therefore have, to a greater or lesser degree, relationships to economic development and economic effects such as those discussed above.

Conclusions

As development proceeds, both the demands for housing and the resources available for investment will increase, and they can reinforce each other. Meanwhile, housing policy of governments in developing countries must be concerned with priority decisions in the allocation of still scarce resources.

1. Housing for whom? Luxury housing for the wealthy few, able to finance it from their own savings? Housing to strengthen the middle class? Low-cost housing for a fortunate few of the working class?

2. What kind of housing? "Minimum" by standards of developed countries, which means relatively high cost and often subsidized? Or improved adaptations of indigenous housing, "substandard," perhaps, in U.S. terms, but low cost, using mainly indigenous materials and therefore

more widely available? Is it better to build fewer dwellings with inside plumbing, or more with outside water and latrines? How can the upgrading of housing be fitted to the transition from traditional to modern living, rather than become a cheap imitation of Western style?

3. How financed? By public funds, in competition with other pressing needs for social investment in education and health? Perhaps subsidized, in effect forcing the rural poor to finance a privileged cadre of urban poor? By private funds, limited, as these are, to relatively small amounts in relatively few hands?

These are decisions that are difficult, politically as well as economically, yet they must be made in order to define the place of housing among the programs of economic and social development.

It remains to be demonstrated how -- or, indeed, whether -- housing can be produced in developing countries by private initiative on a large scale at low cost for a mass market with incomes which, though rising, will still be very low by standards of developed countries. It requires (as it would in the United States) sharp departures from conventional economic relationships and the creation and fostering of new, largely untried institutional arrangements.

It would require, first of all, a pool of savings to support a mortgage market, so that neither builder nor buyer would be required to finance more than a small part of the outlay for construction. Moreover, these savings must be available on long terms (10 years or more) and at low interest rates in countries where rates are traditionally, and (from an incentive point of view) necessarily, high. The availability of low interest funds makes the difference between prices that will reach down into the mass market and those that will not. It is difficult to see how this can be done without the use of public saving through budget surpluses or foreign loans underwritten by the government.

Even assuming low or moderate interest rates, the cost of acquiring and developing land must be kept low. The rapid urbanization and speculation in land have bid up prices to levels incompatible with low-cost housing in growing urban areas. There needs to be evolved a technique, analogous to that used in urban renewal in the United States, for acquiring land through exercise of the sovereign power and reselling it at prices consistent with economic use for low-cost housing. The powers and legal procedures of eminent domain are not always well developed or their use well understood. In addition, the cost of development -- grading, roads, water, etc. -- may have to be borne wholly or in part by the national or municipal government. It should be pointed out that if there is adequate and effective taxation of property, the government can recoup a substantial part of its outlays for acquisition and preparation of large-scale housing sites.

Even with these aids and subventions, private builders may be hesitant and reluctant to take the risks of large-scale housebuilding. As in other forms of production which it wishes to encourage, the government may have to provide inducements in the form of exemption from import duties and income taxes, as well as positive encouragement in the form of technical assistance, vocational training of workers, and encouragement of materials industries (tax disincentives to land speculation also may be necessary). Low-cost housing necessarily means construction on a considerable scale to realize the economies of standardization of design, specification, materials, construction, etc. This requires a high degree of organization and management and well-developed technology, often not easily mobilized. A demonstration by an experienced foreign builder, or a joint venture, may serve as a useful stimulus. In a highly articulated activity like homebuilding, this combination of enterprise, management, and technology may be the most important, as well as the most difficult, ingredient. In some instances, lacking other means, the government itself may have to act temporarily as the entrepreneur in the development of a housing industry. Admittedly, this has disadvantages, but there may be no alternative.

For economic as well as social reasons, self-help may be necessary, especially for the lowest cost housing. Looked at from the economic point of view, self-help is saving by the homeowner in the form of labor invested in his own home. Where labor is relatively cheap and unemployment and underemployment widespread, this may be the lowest cost form of investment, but it must be anticipated in the design and reflected in the organization and technology of the construction.

Even from these summary observations, it should be apparent that a well-planned and appropriately oriented housing program of significant proportions is a formidable undertaking in a developing country. In a developed economy, a vigorous housing industry catering to a mass market is one of the essential elements of economic growth. In an emerging economy, on the other hand, a housing industry must be considered as an element in economic development, which in many ways differs, in its ingredients and in its processes, from economic growth. A large-scale housing program which would mobilize resources abundantly available in a developed economy and stimulate it to greater production and more rapid growth, would be a burden on the limited investment resources of an underdeveloped economy and, if not phased with the mobilization of savings, could actually slow down economic growth. Better housing is as much a consequence as a cause of development. Where total funds for investment are of the order of $10 to $20 a year per capita in most cases, and rarely as much as $50, it is no wonder that homebuilding programs have lagged far behind manifest needs for housing.

On the other hand, housing programs can serve as important breeders of development -- a stimulus to saving and encouragement to investment, especially among those who have not saved or invested before; an exercise in organization and planning; a breeding ground of enterprise, management, technology, and craftsmanship. While it may be a long time before large numbers of houses are built, in the long run the housing industry can prove as important in the development process as in simply providing shelter.

A PROPOSED PROCEDURE FOR PRIVATE FINANCING OF MIDDLE-INCOME HOUSING IN LATIN AMERICA

William F. Butler

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This is a reprint of most of the paper.

There are many facets of the housing problem in Latin America. It is not just a problem of dealing with urban or rural slums, important as such action can be. It is really a problem of providing as economically as possible the housing standards which will fit the needs, and the ability to satisfy the needs, of the various segments of the Latin American population. Thus, there is a place for subsidized housing for low-income groups in cities, self-help housing for families in urban and rural areas, cooperative housing, and private housing for the medium- and upper-income groups.

Of the 18 million families living in urban areas in Latin America, at least half -- and probably a higher proportion -- could afford to buy or rent a new privately-built home, provided that the private housing industry can build homes to sell for as little as $2,000 and that financing can be arranged under reasonable terms.

This estimate is based on the following rough breakdown of urban population according to family income:

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Six million families have annual incomes of $500 or less and can afford to pay no more than $12.50 a month for housing.

Five million have annual incomes of $500 to $1,000 and can afford to pay up to about $20 a month for housing.

Five million have annual incomes of $1,000 to $4,000 and can afford to pay $20 to $65 a month for housing. These families could buy a house costing $2,400 to $7,800.

At least 2 million families have annual incomes in excess of $4,000; in many nations the average income in this group is quite high.

The line of argument here is that only through encouraging local savings can the housing needs of the middle-income groups be adequately and efficiently met. Housing for the urban families with annual incomes of $500 a year or less, and for rural families in the low-income category, cannot, except in unusual cases, be provided by private initiative and investment. However, adequate housing for the 10 million families who now constitute the middle-income group in Latin American urban areas, and for the millions who will move into this category in the years ahead, can be provided by a mechanism which would increase local savings and channel them into housing.

Consequently, this proposal sets forth a procedure -- a mechanism -- which could vastly improve housing standards for middle-income families in Latin America. This may well be the crucial area in Latin American housing in that success here could have important political and social implications.

The mechanism outlined in this proposal is far from unique. It is based on experience both in Latin America and in the United States. It contains two general features which appear to be essential: a system of guarantees, and a procedure under which institutions operating in the savings and mortgage fields can operate in an inflationary setting.

In order to provide a workable institutional framework for expanded mortgage financing in Latin America, a large network of individual savings and loan type banks, or departments within commercial banks, must be developed. In each participating country a home loan bank (HLB) would be set up to make the operation of the local institutions effective. Over them would be an international agency, which might be called the Hemisphere Home Loan Bank (HHLB) which would coordinate and assist the national HLBs in various ways, including the provision of guarantees to increase the marketability of the mortgages and other securities which might be based on them.

The Home Loan Bank

In each participating country, a home loan bank (HLB) would be established, which would:

(1) Certify savings institutions as eligible to issue guaranteed mortgages;

(2) Establish and maintain standards under which guaranteed mortgages can be written;

(3) Issue, for a fee, guarantees on qualified mortgages;

(4) Develop a secondary market in insured mortgages.

The guarantee granted by the HLB on approved mortgages would cover both credit and inflation risks. Thus, individuals could place their savings with certified savings institutions with full assurance that the real value of principal and interest payments would be maintained. Payments of interest and principal by the mortgagor would be linked to the same measure of inflation, so that the savings institution's income would automatically rise in an inflationary situation along with its obligations to savers. The guarantee fee should cover such costs as result from the credit risks involved.

Mortgage terms would vary somewhat from country to country, but the following example illustrates how the mechanism might work:

(1) A minimum downpayment of 25 percent could be set -- this would provide an incentive to save as well as a source of funds for savings institutions.

(2) The terms of the mortgage could be limited to 15 years -- this would provide a larger flow of repayments than would longer terms.

(3) Terms of repayment would include two components:

   (a) Interest at, say, 8 percent on the original mortgage total plus a 1-percent guarantee fee; and monthly amortization payments;

   (b) Escalation provisions tying both interest and principal payments to a broad price index.

Savings institutions would hold a mortgage yielding 8 percent (after payment of 1 percent to the HLB for the guarantee) with full protection against inflation. They could pay a return of 5 percent to

depositors, who are guaranteed both as to the safety of their savings and inflation. Such a return should be ample to draw forth savings, particularly because of the strong desire on the part of individuals to purchase their own homes. It should also, as in the United States, draw savings from other individuals and from institutions such as life insurance companies.

The savings institutions would have a spread of 3 percent to finance their costs and provide a profit. The escalation provisions in their obligations to depositors and in their mortgage holdings would protect them from inflation, while their guarantee would protect them from loss in case of default.

The mortgagor would have his payments adjusted annually in line with movements in a broad price index. However, his income would presumably rise in line with the general inflation so that, in real terms, his payments would not change appreciably.

The Hemisphere Home Loan Bank

It should be emphasized that the great bulk of mortgage financing under this plan would be local, and denominated in local currency. However, it might be advantageous to obtain some funds from abroad, particularly to cover the necessary foreign exchange costs. To obtain such financing, the HLB could sell debentures backed by a portfolio of mortgages to investors outside its country. To make this possible, another form of guarantee mechanism is needed, since such investors must be protected against the risks of devaluation and exchange restrictions. To be salable, HLB debentures would have to be denominated in dollars and guaranteed in a manner which would make them a virtually risk-free investment.

These requirements could be met by setting up a Hemisphere Home Loan Bank (HHLB) as a subsidiary of the Inter-American Development Bank. The individual HLB could get a full guarantee of its dollar debentures from the HHLB by meeting specified requirements. This guarantee would be backed by the capital of the HHLB, plus such resources as it accumulated from guarantee fees charged to HLBs. Since the mortgages owned by the HLBs are protected against inflation, the HLB should have the local currency necessary to purchase dollars to meet its obligations (and it might frequently have more local currency than is needed since changes in currency values frequently lag behind inflation). However, the risks of exchange restrictions would be present and would have to be assumed by the HHLB -- although the HHLB could negotiate guarantees with the local governments where this is desirable.

In addition to providing guarantees against devaluation, the HHLB would also provide technical and financial assistance to the HLBs and

the various savings and loan institutions operating under the plan. The HHLB, which would have broad contacts throughout the hemisphere, and among other international agencies in Washington, could act as a clearinghouse for information of all kinds dealing with housing and housing finance in Latin America.

Operation of the System

The mechanism set forth above is admittedly cumbersome and costly, largely because of the problems of coping with inflation and the devaluations and exchange controls stemming from inflation. It is quite clear that the flow of savings which could be generated and channeled into housing would be much greater under conditions of price stability than under inflation.

Nevertheless, the special terms which would escalate the nominal value and the earnings from mortgages would make them especially attractive to insurance companies and other financial institutions that must, in most countries of Latin America, bear a considerable inflation risk on fixed interest investments. Thus, an expanded source of domestic financing would become available.

The main emphasis here has been placed on the development of local mechanisms, because improved housing can and should be financed primarily by local savings. Thus, the key to success lies in the effort to set up a network of savings institutions -- savings departments in commercial banks, savings and loan associations, or perhaps entirely new institutions -- and induce individuals to save through these institutions.

The flow of U.S. savings into Latin American housing is not likely to assume large proportions under present circumstances, even with the sort of guarantee mechanism outlined above. It would be limited by the ability of the HHLB to provide guarantees which would be regarded as satisfactory by investors. Nevertheless, the mechanism could be useful, particularly in the case of fairly large individual projects.

AIDED SELF-HELP IN HOUSING

George A. Speer

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These are excerpts from the paper.

In highly organized societies acceptable housing is usually constructed by qualified builders, under contract, using commercial materials assembled by skilled labor. After construction, the family moves in and undertakes to pay for having the house built for them, ready, or almost ready, for occupancy. In many parts of the world, this is the best way to obtain a new home. Even in the less developed areas, this is still probably the best way for some, including the small but emerging middle-income class.

However, where the cost of such a house is unreasonably high when compared to the income of the majority, some other method must be used. The age-old answer has been self-help. Having no other recourse, people built their own houses. All too often, the self-built house is small and unsanitary, perhaps because of lack of knowledge of real need or, just as important, lack of materials which if readily available and properly used might increase livability without a corresponding increase in costs.

The aided self-help technique in housing construction is one way to improve such a situation. As its name implies, it is a technique whereby families needing

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shelter are supplied with aid in some form so that they may, through their own efforts, improve their shelter to an extent that they never could alone and unaided.

Among the forms of aid are the development of housing policy, programs, legislation, and usually, the provision of credit; technical advice; material and equipment; sometimes the assembly and improvement of land; and administration and supervision.

Among the contributions of the families to the joint effort are cooperation with the sponsor of aid during analysis of the problem and the development of a solution; assumption of some degree of responsibility for organizing and expediting the work; the provision of labor, usually unskilled, thus capitalizing on leisure time or seasonal unemployment; often the land upon which to build; building materials, especially those of local origin; and other resources, even though meager.

It is through varying combinations of these forms of aid and contributions that an aided self-help program is developed. The technique has proven to be an effective tool. It does have limitations. One of the most obvious limitations is that it is not applicable unless homeownership is desired. It cannot be considered to be a cure-all for the world's housing problems.

Experience with Aided Self-Help

Aided self-help has been found to have a wide range of application, from simple improvements of mud and thatch huts to the construction of modern urban houses.

An experience in Burma is typical of the first. There, over 22,000 families have been aided to provide themselves with permanent, fire-resistant roofs to replace temporary, highly flammable thatch which offered an excellent refuge for vermin. The thatch was short lived, often being replaced before each monsoon. The continuing out-of-pocket expense was something that many could ill afford. Realizing that permanent corrugated roofing sheets could soon be paid for through annual payments no greater than the cost of new thatch, the government devised an ingenious flexible metal fastener so that the sheets could be fastened to existing bamboo roof purlins. A supply of roofing material was made available. The cost was to be repaid with interest over a period of 6 years.

A program in Colombia offers an interesting example in urban aided self-help. It was first introduced in Cali, and since has been extended to Bogotá, Medellin, and other urban centers. Placing heavy emphasis on aided self-help, although including a limited number of houses built under contract for sale, the program reached a level of almost 15,000 dwelling units under construction or in the advanced planning stage in 1960.

In all cases, land was improved for subdivision. Often, the provision of a developed lot and technical advice in the form of plans and supervision of construction were all the assistance an industrious and resourceful family needed. They were then able to complete a small home. They capitalized on the spare time of the family group in actual construction activities and used materials shrewdly purchased out of income or limited reserves. At other times, building materials were included as part of the aid. Sometimes floor slabs were built under contract, thus giving additional assistance to less resourceful participants.

A program in Venezuela illustrates one form of the application of aided self-help to rural housing. Initiated in 1958 it had three major objectives: the construction of permanent masonry houses to replace mud and thatch "ranchos"; the provision of technical advice to those not directly participating in the construction program but who, inspired by it, desired to construct similar houses using their own resources; and the training of rural contractors and mechanics in the techniques of permanent-type construction.

By April 1961, almost 3,500 new houses had been built under the first phase. About 1,100 families had been provided with technical assistance as they used their own resources, and a considerable number of contractors and mechanics had been trained. The families who participated in the direct construction program contributed their labor in fabricating concrete masonry units, laying most of them, assisting such skilled labor as was necessary, excavating for sanitary systems, painting and improving the yard areas. The program is a continuing one, under constant revision as experience dictates.

Conditions for Successful Aided Self-Help

Students of the aided self-help technique in housing construction have found that the manner in which the participating families work is of vital importance. Some believe that perhaps too much emphasis has been placed upon the technique of group action, where a group of participants builds a group of houses, one for each member, as a highly organized building team. This practice may be carried to the point where many prospective sponsors of aided self-help may believe that the only way to proceed is by formal group action.

Under certain conditions, group action is the only way. Often it is an effective method. However, unvarying insistence upon the principle could penalize the program -- for instance, when a group of rugged individualists is involved who probably never could function effectively as a team. Again, group action is not indicated when participants demonstrate ingenuity and resourcefulness. These traits might be of value if directed toward scheduling construction activities, procuring

and arranging for transport of materials, engaging supplementary skilled labor, and, by all these means, relieving the authorities of a significant amount of responsibility and expense. At times, this potential, if developed and given an opportunity for expression may be of value equal to the construction labor which the family contributes to the building effort.

Other factors which influence the decision as to the use of a formal group or a family group in implementing the work are: the geographical distribution of the program; the type of construction involved; and the intangible sociopolitical dividend which might result from formal communal effort.

Aided self-help demands more than the usual professional skills. The shelter improvement, in whatever form it may take, must be so designed as to be quickly and easily built. The participating families have few special skills. They certainly cannot be expected to devote so much time to the program as to compromise their basic source of income. Even if they do arrange in some manner to devote long hours over a long period of time to, say, the construction of an urban house of time-consuming design, the long drawn-out program risks excessively high administrative and overhead costs which might nullify the value of the contributions of the participating families. Thus technical ingenuity in finding more ways to build better in less time may here find its greatest challenge.

Aided self-help offers a special challenge to the administrator in inspiring a realization of the need for improvement and a desire for a practical solution; in convincing the people and their leaders that a sound plan within resources and ability to pay is possible; in insuring that both the participating families and the sponsor of aid realize their responsibilities and the necessity of meeting them promptly; and in assisting the families to take full advantage of the improved quarters.

Aided self-help may be expected to be most successful in areas where self-help is an accepted technique since, basically, self-help is the primary factor -- the aid is secondary.

It is particularly adaptable to simple techniques for the improvement of inadequate shelter. These might include the provision of: a potable water supply where one does not now exist; a method of sanitary disposal of wastes; a weathertight, fire- and vermin-resistant roof; a less absorbent floor; or the construction of an addition to reduce room density. These all represent degrees of improvement which may have significant value in improving livability, and in reducing the incidence of disease.

In urban areas aided self-help has been less uniformly successful. When used with low income squatters, who have built their own provisional shelter, or desperate, low income slum dwellers, it can be successful if kept to standards of improvement within the capacities of the groups to be served. Often it is the only technique to implement modest programs of this nature. At times, improvement of his present shelter taxes the capacity of the squatter. Generally, a simple, modest nucleus of a permanent, sanitary structure represents the limit of what a participant may construct, in the time available to him, and pay for.

Design must be simple and straightforward to capitalize upon the labor contribution of the participants in self-help housing programs. It must be such that the demand on the participants does not exceed their technical capacity or the amount of time that they may devote to the project. At the same time, it must be such as to capitalize to an unusual extent upon unskilled labor. The construction period must not be prolonged to the extent that the overhead and administrative costs become prohibitive.

In the last analysis, the financial success of such programs is reflected in the difference between the value of the contribution of the participant as compared to the additional administrative and supervisory cost, if any, resulting from use of the aided self-help technique. An intangible value, in the sociopolitical sense, which might result from the successful collaboration between the participant, his fellow workers, and the authorities in solving the difficult problem should be considered. The fact that the participant may be expected to be more than usually adept at maintaining his home in a state of good repair is important.

Particular attention should be given to the fact that aided self-help is especially suitable to simple improvement of existing owner-occupied, substandard dwellings. This fact may become of more and more importance to planners as the availability of additional data points up the wide discrepancy between the extent of need and the resources with which to meet the need.

Finally, in times of emergency resulting from widespread damage to housing, such as earthquakes, fires, floods, etc., it is strongly recommended that consideration be given to the possibility of introducing aided self-help into the reconstruction program, to reduce the load upon the construction industry. The speed with which an aided self-help program may be put into action, the extent to which responsibility may be shifted to the participating families, and the value of their other contributions to the common effort all offer promise of rapid rehabilitation, with a minimum drain upon resources.

THE POTENTIAL USE OF FOAM PLASTICS FOR HOUSING IN UNDERDEVELOPED AREAS: A PRELIMINARY INVESTIGATION

Stephen C. A. Paraskevopoulos, Harold J. Borkin, Robert M. Darvas, and C. Theodore Larson

[Prepared by the Architectural Research Laboratory of the University of Michigan for the Agency for International Development of the U.S. Department of State, Washington, D. C., 1963.]

[This is the first published report of the results of a project financed under the development research program initiated in 1962 by the U.S. Agency for International Development. It describes a preliminary exploration of the possibilities for using foam plastics as a building material in less developed countries and explains the further research work which should be undertaken in order to develop more satisfactory and economical types of plastics and to adapt building designs and construction methods to the potentialities and limitations of these new materials. The excerpts printed here summarize the non-technical findings of the project.

This preliminary survey was made under a research contract between AID and the Architectural Research Laboratory of the University of Michigan in Ann Arbor, Michigan, U.S.A. The research was conducted and the report prepared by Stephen C. A. Paraskevopoulos (Project Director), Harold J. Borkin, Robert M. Darvas, and C. Theodore Larson, all of whom are members of the faculty of architecture at the University of Michigan. Inquiries and comments concerning the report should be addressed to the U.S. AID Mission (or the AID Representative) in each country. Where AID has no representative, inquiries should be sent to: Research and Evaluation Staff, Agency for International Development, Department of State, Washington 25, D.C.]

Excerpts from the report begin on the next page.

If building industries are to be established in the underdeveloped areas, what form should they take? Oviously they should not have the built-in inadequacies of the traditional type of building activities that have evolved in the more advanced countries. On the contrary, they should be able to produce more dwellings of better quality at less and less cost to the consumer. At the same time, they should help to raise the national standard of living by boosting the economy of each developing country through increased industrial productivity.

The housing problem in each developing country should be broken down into two distinct aspects: (1) the demand for an immediate improvement in family living conditions, and (2) the need for a long-range development of an up-to-date building industry capable of producing housing of improving quality and increasing quantities. Both aspects have to be considered together as investments to advance the country's economy.

The fact that a particular solution proposed for an underdeveloped country has not yet been introduced even in the most developed countries should not become an inhibiting concern. Any innovation, regardless of its degree of technical sophistication, should be considered for development use, particularly if it holds the promise of being more efficient and less costly to install, operate and maintain. Many technical possibilities have not yet reached the marketing stage in the more developed countries simply because they [are inconsistent with satisfactory existing systems which represent large capital investments], come in conflict with established building codes and other legislation, or drastically upset the traditional way of doing things.

In cases where a new technical possibility has not been fully developed or does not yet meet the high standards of performance demanded by people living in the more developed countries, it would be to the advantage of a less developed nation to help in the further technical development of the innovation by becoming an area for needed field testing. It would thereby become an active participant in a collaborative system of international development, while benefitting directly from such experience by building up within its own boundaries a new set of national resources.

The Plastics and Their Advantages in Housing

Many new kinds of building materials have been developed in recent years which can be used to advantage in the construction of new dwellings. All of these must be considered in any long-range housing program involving a specific country or area, but it is believed that special attention should be given to the plastics, particularly the foam plastics, for many different reasons.

In recent years, while the cost [in the developed countries] of traditional building materials has been going up (or at best remaining steady), the price curves for many plastics have been sloping sharply downward. The cost of components for the production of polyurethane foam, for instance, was around $6 a pound only some years ago; in July 1962, at the outset of this feasibility study, the price was 50 to 60 cents a pound, and today it is getting close to 40 cents.

Because of their synthetic chemical composition, many different kinds of plastics can be readily produced which will meet very precise specifications and conform to a vast variety of requirements and conditions, very often without great change-over costs in production. The quality of the end-product can also be largely controlled in the laboratory, where the prevailing attitude is always to seek to find a better product through research and experimentation (occasionally through accidental discovery).

The production of low density plastics (foam plastics) at a reasonable cost, in addition to providing an excellent kind of insulation, has opened up new possibilities in the construction of dwellings. Besides offering advantages in terms of global logistics and such other virtues as ease of fabrication at low investment cost and light weight, it is believed that their proper selection and use will eventually result also in much lower building costs.

Being a synthetic product, the plastics require industrial facilities for their manufacture and processing. Industrialization may, therefore, be promoted in any country where markets can be created for the various types of plastics. Countries most likely to be benefitted industrially from such development are those which have natural resources, such as oil, or by-products and wastes resulting from other industrial production that can be utilized in making either the plastics or the plastic building parts.

The main economic advantage offered by the plastics is their wide variety of possible uses, ranging all the way from tableware and small toys to large structural components. This versatility in turn assures a great diversification of markets. If production facilities can be created for the building market, potentially the largest, the output would be ample enough to take care of other possible markets (clothing, textiles, furniture, household furnishings, containers, and equipment of many sorts), all of which present equally pressing needs in the newly developing countries. Even if the existing housing market is not large enough at the outset to absorb an output of building materials big enough to insure low unit costs and a reasonable margin of profit immediately, a plastics fabricator could stay in business by producing mattresses or any of the other aforementioned consumer products which are needed in most of the developing countries and for which there is already a market demand.

Results and Avenues for Further Research and Development

Although more research and development work has to be done, it is the conclusion of the project staff that, particularly in countries where a modern building industry does not yet exist, plastics have more promise in resolving the local housing problems in a better or a more economical way than do the traditional building materials.

Because of their light weight, they offer special advantages in areas that are plagued by earthquakes. In Iran, for example, the last earthquake claimed 50,000 houses and 10,000 victims primarily because the dwellings were constructed of heavy materials, such as rammed earth. To build truly earthquake-resistant structures in this area would be prohibitively expensive and, besides, the necessary materials are not available locally. The introduction of dwellings made of plastics, despite the fact that at present they will be far from perfect, will prove a much better alternative than having the same destruction repeated once again during the next earthquake.

For short-range and emergency housing, foam plastics could be introduced either in combination with a light frame or in combination with an appropriate coating. In the first case, since the material is used as a fill-in, strong protective coatings would not be required. Both polystyrene and polyurethane slab stock may be used for this purpose or the required parts could be molded. In the second case, structures may be erected from either slab stock or molded parts with a protective skin or a coating whose function would be to protect the foam plastic and tie the structure together. Conventional mortars as well as plastics could be used for such coatings. Parts for these structural units could be produced by small transportable plants. Temporary and easily disposable shelters, which will have the added advantage of not standing in the way of future progress, could be designed for both cases.

It is also conceivable that such shelters could be produced by inflating skins with foam plastics, but more research will be necessary in this area. Finally, if only a crude temporary shelter is required it could be produced by spraying polyurethane or epoxy foam on an air-supported form or on some kind of armature. This method, simple as it may sound, has many inherent problems (protection of the operator, equipment maintenance, overspray, etc.) and is not recommended for use by inexperienced persons.

There would be obvious advantages if performance data on foam plastics could be collected through their application to short-term housing problems. Furthermore, in many cases, foam plastics may offer the only practical solution to the problem of emergency shelter. However, the method of introducing foam plastics for such purpose in a specific area should be carefully studied so that, while some short-term housing

needs are being covered, a maximum amount of research data can be gathered and evaluated without any adverse effect on the future acceptability of foam plastics.

For psychological reasons it may be inadvisable to introduce foam plastics in certain areas unless the appearance of the structure will meet certain acceptable standards. Failure to do so could adversely affect the future introduction of foam plastics on a higher level of building technology. A house is inherently a status symbol and this is especially so in underdeveloped countries. It is believed that foam plastics have a great potential as building materials for the future, and every effort should be made so that they will not become identified as low prestige materials.

At this time, for more permanent structures, the initial introduction of foam plastics in underdeveloped countries should be along the lines of the Koppers or the Monsanto-Lockheed house, that is, in the form of structural sandwich panels with fairly strong surface materials such as asbestos-cement. In areas where there is a lack of adequate building materials, such structures could be competitive in price with what now exists and also offer higher quality. Although sandwich panels of this kind are not truly representative of foam plastics technology, they will help familiarize people with foam plastics as a building material. Also, since these panels are industrially produced, their purchase by people who can presently afford them will help to absorb the initial production cost, thus making such structures, as well as the foam plastics, accessible to an increasing number of people.

Although foam plastics presently may offer a certain attraction for short-range housing problems, it is believed that their great potential lies in the resolution of long-range housing needs. Assuming that some of the problems of quality control and dimensional stability can be solved, it should be possible to produce a great variety of structures of increasing quality and decreasing cost. The emphasis of any future research should be in the direction of developing structural systems which offer the greatest possibilities for industrial mass production. Short-range housing projects should become the testing ground for structures which seem to have the most promising potential for industrial development. Thus, while research is working for the future, many short-term needs may also be met as a by-product of such research.

HOUSING IDEAS AND METHODS
EXCHANGE SERIES

This series of pamphlets is published from time to time by the United States Housing and Home Finance Agency (an agency of the United States Government) for the U.S. Agency for International Development. Its purpose is to present new ideas, methods and experiences relevant to the housing needs and problems of less developed countries. To date, a total of 58 pamphlets have been published in the series. Recent publications describe Colonia Managua, An Aided Self-Help Housing Project in Nicaragua (#58); Coral and Sea Water in Concrete (#53); Experiments on Stabilizing Soil for Use as a Building Material in Iran (#51); Israel's Savings-for-Homes Plan (#44); Mud Brick Roofs (#42); etc. Requests for a complete list of the pamphlets published in the housing Ideas and Methods Exchange Series and for copies of individual pamphlets should be addressed to the U.S. AID Mission (or to the AID Representative) in each country. Where AID has no representative, send inquiries to: Research and Evaluation Staff, Agency for International Development, Department of State, Washington 25, D. C., U.S.A.

BIBLIOGRAPHY ON HOUSING,
BUILDING AND PLANNING

[U.S. Housing and Home Finance Agency,
Office of International Housing,
Washington 25, D. C., 1963, 47 pp.]

Prepared by the U.S. Housing and Home Finance Agency at the request of the Agency for International Development, this bibliography consists of selected recent books and periodicals on various aspects of housing relevant to the needs of less developed countries. Some of the subjects covered are: aided self-help housing, the building industry, building methods and materials, city and regional planning, community facilities, cooperative housing, industrial location, land problems, public housing, rural housing, and urban renewal.

Most of the items listed are published in the United States or by UN agencies and other international institutions, and some are available in French or Spanish as well as in English. Where the title does not clearly indicate the subject of the publication, an explanatory sentence has been included. A useful feature is the listing of periodicals in the field of housing. The cost and publisher's name and full address are given for each book and periodical in the bibliography.

The bibliography was prepared primarily for the use of AID personnel, but would also be of value to government officials, builders and others in less developed countries concerned with housing. Requests for copies should be addressed to the U.S. AID Mission (or to the AID Representative) in each country. Where AID has no representative, send inquiries to: Research and Evaluation Staff, Agency for International Development, Washington 25, D.C., USA.

ECONOMIC INTEGRATION

THE BENEFITS OF REGIONAL ECONOMIC INTEGRATION AMONG AFRICAN COUNTRIES

A. J. Brown

[From a paper presented at the Nyasaland Economic Symposium held in Blantyre in July 1962.]

[At the present time, several groups of African countries are considering various kinds of regional economic arrangements. Some involve only cooperation by governments in undertaking joint programs for coping with common problems. Others, however, are more ambitious, contemplating a significant degree of economic integration in trade and investment and the establishment of arrangements for common services in such fields as transportation, customs administration, and even currency and banking.

In this paper, prepared for the Nyasaland Economic Symposium, Dr. A. J. Brown discusses the advantages of such regional economic arrangements, particularly the free-trade area type of integration, and explains how the difficulties of establishing them could be overcome. A short description of the Symposium will be found on pages 48-49.]

These are excerpts from the original paper.

Economic union can mean a number of things. Perhaps the simplest thing it can imply is free trade between the constituent countries. The next meaning that comes to mind is a true customs union -- not only free

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trade in goods between the countries concerned but the adoption by them of common tariffs (or other trade barriers) against goods coming from the outside world. Next, one may think of union as implying free movement between the territories of some or all of the factors of production. In so far as capital is one of the factors free to move, this leads on to the question whether the countries are to have, in some sense, a common monetary system, or at least a firm arrangement whereby their currencies shall be mutually convertible without restriction, or mutually convertible at a fixed rate, or both. Next, there is the question whether the development policies of the member countries should be worked out in common, or accommodated to each other in some way. And, finally, the terms of an economic union may include some degree of pooling of part of the public revenues, or the joint development and ownership of public utilities, such as transport systems, or of educational and research establishments, and possibly of some tax collecting machinery.

Many of these forms of economic union exist to some extent in the absence of political union. Tanganyika, Kenya and Uganda constitute a common market with an almost (though not quite) common external tariff, have a common monetary system, and operate a wide range of fiscal, research, educational, and transport services through their Common Services Organisation. They even, to a small extent, redistribute public revenues through a pool in order to provide some degree of automatic compensation for inequities in the operation of the common market. In a different context and on a bigger scale, the Treaty of Rome provides for the gradual creation [by the six members of the European Economic Community] of a common market with a common external tariff, freedom of internal migration and capital movements, common policies with regard to agriculture and transport, and, in very general terms, for the co-ordination of the economic policies of the member countries in the interests of internal and external equilibrium. The United Nations itself, along with its specialised agencies, provides common services of information and research, machinery for the limitation and reduction of international trade barriers, the essentials of an international monetary system, and some distribution of development funds in the light of a central appraisal of competing claims. 'Economic union' covers a lot of possibilities.

Advantages of Free-Trade Areas

The possibility that receives most attention at present is that of a free-trade area. How important is this for African countries? I do not think that most of the theoretical discussion of this subject helps us much. The treatments of Viner, Meade, Makower and Morton, Gehrels, and Lipsey (admirably surveyed by Lipsey in the Economic Journal for September, 1960) are concerned almost entirely with the effects on economic welfare [of the member countries] on the assumption that there are no productive economies of large scale. I would argue that [this analysis is] wholly unrealistic when applied to African conditions.

First, it is based upon a short view; it takes comparative advantages and trade-patterns as they are now instead of considering what they are likely to be, say, a generation hence. By that time, African comparative advantages in different kinds of production are likely to -- or at any rate could -- be greatly altered by the spread of education and technical knowledge, and by the increase of population. In some parts even today the prospect of extending primary production radically is poor; in such areas, the comparative advantage shifts towards secondary industry as soon as skill, capital, communications, and the forms of organisation and habits of life appropriate to manufacturing industry can be provided. This is beginning to happen already. As it [continues], the trade-patterns will change. Experience of countries already semi-industrialised suggests that external trade at a somewhat later stage grows less fast than internal purchasing-power. At this stage, too, trade between African countries -- both between those already semi-industrialised, and between semi-industrialised countries and those with comparative advantages in primary production -- would probably grow faster, proportionately, than trade with the outside world. The area of the economy over which free-trade arrangements among African states might be expected to improve the use of resources would thus increase with development, and the areas over which such unions would cause high-cost goods from within the union to be substituted for lower-cost goods from outside it would relatively diminish.

[Second, the conventional analysis] takes no account of economies of scale. In African conditions, these are crucially important.

Today, in relation to any scales of production that either are declared to be optimal for engineering reasons, or are actually prevalent in advanced countries, the markets offered for most kinds of manufactures by most African countries are very small indeed. Taking such estimates of national income as exist for African countries, and making very rough estimates for the rest with the help of population figures, I arrive at the conclusion that the median income is about £50 [$140] million -- roughly that of Nyasaland. The upper quartile seems to be about £180 [$500] million, the lower quartile about £15 [$45] million. These estimates are intended to include subsistence production; if one takes only money income these figures are reduced by anything from 15 per cent in some cases to over 50 per cent in others. The money income of the 'median' African country is probably less than that of an English town of 100,000 inhabitants. This does not mean that demand for each kind of manufactured good would be the same in our median African country as in our English town. Judging from East African data, it seems that the African demand is several times as great for cotton textiles, about twice as great for cement, about the same for footwear, and much less for most other kinds of manufactures. For non-food manufactures in aggregate, [it is] probably somewhat less than the English town's demand.

How do these markets compare in size with the optimum scales of production? For the present purpose, we are interested not in size of plant as such, but in the size of the market that one plant supplies. The convenient first step to this relationship is the ratio of total employment in the industry to that in the 'median' plant -- the number of plants of median size that would be required to supply the whole market. [In British industry] this number varies, naturally, over a wide range, from something like 20,000 in the building industry to a mere half-dozen in mineral oil refining. It is, however, less than 200 in about three-quarters of the 103 industries, less than 140 in about half of them, and less than 50 in about a quarter. Bearing in mind that the United Kingdom is a net exporter of manufactures, supplying a total market that is bigger by perhaps a fifth or a quarter than the home market, one may conclude that in three-fifths of all British industries (including in the total those with no predominant plant-size), the 'median' plant requires the equivalent of a British market with an income of £110 [$310] million or more to absorb its products.

Three-quarters of the separate countries and territories of Africa do not possess a money income of this size; a still higher proportion of them would fail to provide an adequate market for the outputs of most of the 'median' plants in question. How much does this matter? We lack much information about the optimum scales of production; still more, we lack information about the degree in which working at less than the optimum scale reduces output per man. All that can be said is that there is a presumption that working within the limits of single African countries, even with a single plant, would in the majority of industries reduce the attainable level of productivity substantially. The reduction would be all the more substantial in that the rough calculations just described do not take account of the fact that different plants classified as belonging to one 'industry' in Britain are often not competing plants, turning out similar products, [but are plants] turning out different components of a product, or performing different processes, so that several plants may go together to form a productive system which could not be broken up without loss of efficiency.

At all events, it seems that, so far as manufacturing industry is concerned, a large part of it is likely to work to substantially greater advantage within market areas bigger than most African countries than it would work within most of those countries singly. This means that, in so far as reliance is placed upon enterprise from outside, this will be attracted preferentially to the larger African economies, or to free-trade areas. Even if development is largely independent of enterprise from outside, the larger countries, or unions, will tend to obtain a substantial competitive advantage from their size as development proceeds.

Problems of Free-Trade Areas

I have dwelt at length on this matter of the advantages of free-trade areas. What is to be said against them? Perhaps the most obvious

thing is that they present administrative difficulties, or limitations on freedom of fiscal policy, or both. These are problems to be aware of, but they should not be insuperable. They are probably much less important in the long run than the economic strains which arise from disparities of development between the members of a free-trade area.

I have emphasized that, in African conditions, at least, a good deal of the case for the free-trade [area type of] union rests upon the large output of the efficient modern manufacturing plant. It follows from this that, especially while purchasing-power is still low, production of any one type of manufactured good must be very highly localised. Indeed, experience shows that there is a strong tendency for many kinds of manufacturing activity to congregate together, and for a fairly high degree of aggregation of manufacturing industry to remain even when the economy has grown and made room for many plants in each of the main industries. I need not go into the reasons for this, except to say that they may well be especially strong in the early stages of development, when poor transport facilities limit the choice of locations, and anything like a body of experienced factory labour is much smaller and more localised than in later stages of growth.

In these circumstances, there is a strong tendency for the benefits of the union to be localised in the member-territory that happens to become the main focus of manufacturing industry and commerce. The other member-territories then tend to complain, on two grounds. First, they are apt to covet the development of secondary industry which has passed them by, and to believe that, with tariff protection against their partners, they would have attracted some of it for themselves. I think it follows from my previous argument that this belief is largely invalid when the territories in question offer markets as small as most African territories can provide today. Without the union, the growth of secondary industry would simply have been smaller, and would still have been preferentially attracted to certain territories -- probably the largest and richest of the economies concerned.

The second ground of complaint, however, is more substantial. If we assume that the non-industrial territories pay prices for manufactures of their partners which are equal to the prices of competing imports, including import duty, then by being in the union they lose revenue equal to the duty on the manufactures which they buy from their union partners instead of from the outside world. Probably this loss of revenue brings about a reduction of public expenditure, leading to a reduction of total income. Correspondingly, of course, the industrialised territory gains in total income, because of the existence of its secondary industry. The taxation on this income will compensate its government (indeed, probably more than compensate it) for what it loses in import duty by producing manufactures at home instead of importing them. This is not the whole story; there are mitigating considerations. In so far as the increased income of the industrialising territory leads it

to buy more from its union partners, the benefits of its industrialisation are diffused.

There are a number of things to be said about this problem of uneven development within a free-trade area, and its consequences. The first is that it may be possible to avoid it to some extent by interterritorial, or international, planning of development, which might make the rates of advance in the different territories or countries more nearly equal than they would otherwise be.

Secondly, more rapid, and more uneven, development can be reconciled with the interterritorial equity to some extent by financial transfers. Within a unitary state or a federation a certain amount of this may happen automatically through the ordinary channels of public finance; for instance, if some part of the central (or federal) revenue is divided between districts or states in a predetermined proportion, then all will get some share of the extra revenue from new secondary industries, and all will share the loss of customs revenue as home production displaces imports. Transfers of this kind can operate to some extent even between separate countries; the method of financing the non-self-contained services of the East African Common Services Organisation and the operation of the associated distributable pool, are designed to produce exactly this effect between Kenya, Tanganyika, and Uganda -- offsetting certain inequities in the operation of the East African Common Market.

Thirdly, the problem of unequal growth within a free-trade area is mitigated from one point of view, though not from another, if there is free movement of factors of production between the member territories. So far as labour is concerned, freedom of movement makes it possible for people to move to those areas where advance is fastest thus partially correcting the mal-distribution of population in relation to resources on which the inequality of development is likely to be at least partially based. This is, indeed, the way to secure the highest possible rate of growth in total income, and at the same time to promote greater equality of incomes between the people of the free-trade area. But this very process may accentuate the divergence between the aggregate incomes, and government revenues, of the member territories; the poorer lose population to the richer, receiving some compensation in the form of emigrants' remittances, some useful skills brought by returning emigrants, and a reduction of the pressure on their natural resources. In terms of economic welfare, these are substantial compensations, though to the patriotic eye they may appear insufficient.

Common Services

From the advantages and difficulties of free trade in goods and the associated question of free movement of factors of production, I should like to turn now to the advantages and difficulties of sharing the overhead costs of public services. This is another neglected subject, though

a good deal that is relevant to it, as to the rest of my topic, was presented to the 1957 meeting of the International Economic Association, and is published in The Economic Consequences of the Size of Nations. [Edited by E. A. G. Robinson, London, Macmillan & Co., 1960.]

There are some services which can be pooled between territories, for the spreading of their overhead costs and the increase of efficiency, only if the territories in question are in effect federated; most of the services grouped together as general administration are clearly among these, though East Africa has the remarkable feature of a common tax-collecting service. Some part of education is in the same case -- as, for example, the University of East Africa. The operation of transport systems and research organisations of international scope is a matter on which there is a larger body of experience. Without for the moment going further into the political conditions for these various types of pooling, can one estimate their economic importance?

To a large extent, one has to rely here upon general presumptions. Economies in the large-scale operation of public services, like those in large-scale manufacturing, come from the indivisibility of certain units in the organisation. In all services, some of these units are simply individuals of unusual ability and training, capable of extending their beneficial activities over a wide geographical area. Sometimes they are teams; sometimes they are pieces of plant or equipment -- laboratory facilities, repair-shops and the like. The larger the costs of these specially qualified individuals, or these special facilities, bulk in the total cost of the service in question, the greater the probability that there are economies of scale. Research services provide perhaps the clearest example; the optimal geographical scope of an establishment is limited only by the prevalence of the physical and economic conditions to which its findings apply. The same is true of a central banking organisation, or, to a considerable extent, of any advisory service. In the educational field, it is mainly the institutions of higher education and vocational training that show large economies of aggregation, and, among them, pre-eminently the faculties or schools that deal with small proportions of the total population at high cost per student -- above all, the medical schools, with their need of teaching hospitals.

The case for seeking these economies of scale, moreover is stronger where specialists are scarce and expensive than where they are relatively plentiful, and therefore command salaries not so much above the general level. Africa in particular needs to economise its specialists for this reason.

In some services, there are further technical sources of economy from common operation over large areas. Transport (both rail and air), for instance, not only provides a strong case for a sufficient scale to secure the full use of specialised services and machines of large capacity; there are often interterritorial differences in the seasonal pattern

of traffic, so that it is specially advantageous to be able to shift vehicles between the internal services of different territories. Another consideration of importance here is the interrelated nature of local and interterritorial services -- the former partly feed the latter, but the latter often cover their direct costs better. There are clearly gains to be made from operating on a geographical scale that may well be more than national.

Finally, there are what we may call the economies of planning on a large scale. These do not arise only from the fact -- though it is an important fact -- that planning staffs and other organs of economic policy require scarce and expensive kinds of personnel, and need to grow only less than proportionally to the size of the economy with which they have to deal. They arise largely from the fact that planned development is co-ordinated development of complementary resources. Needless to say, the probability of desirable development failing to materialise through lack of a planning organisation of sufficient geographical scope is very considerable when the planning areas are small, and decreases sharply (though no doubt at a decreasing rate) as they become bigger. Needless to say, also, the technical interrelations between branches of economic activity, and between localities, that development involves are complicated and widespread, and are more likely to be critical in an undeveloped economy than they are in a developed one, which has nearly every kind of industry, skill, and service already in existence, most of them with some excess capacity at any given time.

Summary and Conclusions

I have now said something of a rather general kind about the scope for economies from union (in various senses) between countries in Africa. Let me first summarise it and then try to draw some conclusions:

(1) African countries, in general, present rather poor cases on the (not very realistic) grounds of conventional theory for mutual free trade in goods, in as much as the amount of their [existing] mutual trade is small.

(2) Nevertheless, not only will this situation probably change as development proceeds, but the extreme smallness of the demand for most manufactures within most African countries means that they will be severely handicapped in developing manufacturing industries unless they can in some degree pool their markets.

(3) The smallness of African national or territorial economies also means that the advantages of scale to be got from pooling many of their public services are substantial, especially since some of the expertise required for these services in present African conditions is so scarce. Among the 'services' to which these considerations apply strongly is the planning of economic development.

(4) The smallness of territorial economies, and the diversity of their present development and scope for future development mean that, for the people of the Continent as a whole, there are enormous advantages in freedom of interterritorial movement and payments.

(5) Interterritorial differences of both actual and potential income levels give great scope for raising welfare by public finance transfers between countries. Some transfers of this kind may also be necessary, or at least helpful, for reconciling the less fortunate countries to an arrangement that raises the rate of growth of an interterritorial union as a whole at the cost of continued, or increasing, differences in the social products of its geographical parts.

My conclusion from all this is that Africa split into fifty economically separate states makes no sense at all. The four biggest economies -- the Union of South Africa, Egypt, Nigeria, Algeria -- which together account for nearly half of the continent's income, have big advantages in the race for development by virtue of the sheer sizes of their markets, even though these are, on the average, only about as big as the internal markets of Norway or New Zealand. The rest of the African countries or territories carry an enormous handicap in their separate development in consequence of their smallness -- a handicap outweighed only for a small minority of them by some such advantage as their richness in exportable minerals. Union, combination, close co-operation of some kind seems to be absolutely necessary to give reasonable prospects of growth. But what kind of union, and between which territories?

Obviously, I can adduce only very general principles in reply to these questions. To go into specific detail would be impossible without an enormous amount of study, and in any case specific proposals for interterritorial union, like proposals for marriage, have to take account of many factors other than economic ones. But here are a few general presumptions that may be of some use in considering specific cases.

First, in so far as considerations of scale are of primary importance in African conditions, any union that involves pooling of markets and/or services is advantageous, but the more so the smaller are the territorial economies within it.

Secondly, since considerations of scale are most important in manufacturing industry and in some of the services usually publicly provided, it follows that unions are most advantageous:

(a) where they are of a political and geographical form that facilitates common public services (whether by a central political authority or a Common Services Organisation), and/or

(b) where one or more of the constituent territories has comparative advantages that mark it out, at least in the long run, as more

suitable for manufacturing industry than for production of exportable primary products (e.g., a high population density in relation to natural resources).

Thirdly, in so far as union tends to facilitate movement of factors of production (especially labour) between the constituent territories, it will be most advantageous to their populations as a whole where it links territories with markedly different levels of living, or territories with poor development prospects on the one hand with territories with good development prospects on the other. The benefits are greatly reinforced in such cases if the union is of such a nature that its public finance system transfers income from richer to poorer territories.

Fourthly, the benefits of a union may be very unevenly distributed; some territories may in extreme cases lose by it though such losses are outweighed by the gains elsewhere.

Fifth, the chance of forming a union, and its stability when formed (so far as these depend upon economic factors), are presumably greatest where the advantages are not only substantial, but also well spread among the participants. From this, and the foregoing considerations, it seems to follow:

(a) that the most beneficial and stable economic unions are those involving small territorial economies, all of which are suitable for some development of secondary industry, but that a necessary condition of stability may well be an effective plan allocating industrial projects among the territories;

(b) that unions in which the prospects of secondary industry are much brighter in some territories than in others are likely to commend themselves most strongly to these potentially manufacturing territories, and to bring comparable advantages to the other territories only if these find in the union improved outlets for their labour, naturally or artificially protected markets for their produce (e.g., for perishable foodstuffs), or substantial financial transfers in their favour;

(c) that unions among areas whose strength and prospects, within the practical horizons of policy, lie in exporting primary products to the outside world and not in secondary industry may bring substantial economies in common services, but present neither so strong an economic case as those among potentially manufacturing territories, nor such a powerful mixture of advantages and probable tensions as those among territories that will industrialise and others that will not.

I am aware that these are only very crude generalisations, and that, in any case, the political and psychological aspects of an association

between territories can have stronger effects on their development, or lack of it, than the more purely economic factors to which I have confined myself.

There is one other general consideration that I should like to mention in conclusion. If one starts with fifty economies as small (in general) as the economies of the African countries and territories today, it seems to me that there are only two organisational roads to progress. One [longer-term possibility] is political coalescence into 'all purpose' unitary states, or into federations or confederations with various divisions of powers between central and state authorities -- the aggregations being much bigger than most African territories now are. The second possibility is of a complex but effective pattern of ad hoc, functional co-operative organisations, linking the existing political units in various economic groupings. For the immediate future, it may be that Africa will rely on such more or less separate, functional, interterritorial economic organisations. This second possibility seems worthy of serious contemplation as the only alternative [in the shorter-term] to economic stagnation.

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The Theory of Economic Integration, by Bela Balassa; Homewood, Illinois, Richard D. Irwin, Inc., 1961, xiii and 304 pp., US$7.35.

This book is the most complete and detailed explanation of the economics of regional integration so far published. The author deals with both the economic theory and the practical problems of integrating two or more economies into a free-trade area or a customs union -- the two basic forms of economic integration. Though much of his material is drawn from the experiences of the European Economic Community and the European Free-Trade Area, he also devotes considerable attention to analyzing the formation and problems of the Latin American Free-Trade Area and the Central American Common Market. Professor Balassa's book will be of considerable use to those interested in the theoretical aspects and practical problems of economic integration among less developed countries. It is, however, quite technical, and training in economics is required for understanding the theoretical analysis.

TRANSPORTATION

Without the capacity to move goods and people efficiently and economically, a country cannot increase its productivity and raise its living standards significantly. A modern transportation system is, thus, a necessity for economic and social development. But, transportation facilities are costly to build, requiring large amounts of capital, and they compete with other essential investments. Moreover, continual maintenance and repair are needed if transportation facilities are to be useable for the long periods of time required to amortize the capital invested in them and if they are to produce the benefits envisaged for the economy as a whole.

The first three papers in this section were prepared for the panel on transport of the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas. The first paper discusses the criteria on the basis of which economically-sound decisions can be made regarding the relative share of transportation in the allocation of investment resources among competing needs, its distribution among the different types of transportation, and the determination of routes, capacities, and the phasing of construction programs. The second paper is an account of India's experience in trying to keep a proper balance between the growth of the economy as a whole and the expansion of the capacity of the transportation system, principally the railroads. Methods of planning and scheduling the development of a road system are described in the third paper. Following these selections are a short account of the highlights of the transportation sessions of the UN Science Conference, and a brief mention of the collection of U.S. papers prepared for this Conference.

TRANSPORT SURVEYS AND FORECASTING

Eric E. Pollock

/From "Transport Surveys and Forecasting," a paper prepared for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas (Agenda Item E.1.2 -- E/CONF.39/E/48, October 1962), United Nations, New York, N.Y./

These are excerpts from the paper.

In a totally subsistence economy, all needs are provided (or left unprovided for) locally. Lack of knowledge, lack of interest, lack of the necessary skills, and very possibly the inhibiting effects of tribal and other loyalties restrict the very demand for the transport of goods. The development of adequate transport (in the sense of communications) is an essential sine qua non for the growth in demand for goods "imported" from outside the immediate vicinity of an area. If living standards are to be raised, the necessary transition from a subsistence to a cash economy can only be made if money for goods from other areas is wanted; this is dependent amongst other things on the dissemination of knowledge made possible by the development of communications. Only in the presence of reasonable communications, and given reasonably low cost transport, can an economy move from a subsistence to a cash basis. In any underdeveloped territory, the adequacy of the transport infrastructure is likely to an important degree to determine the maximum rate and pattern of economic growth. Specialisation of function, both personal and regional, is only made possible in the presence of adequate transport facilities.

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However, the mere provision of such facilities is obviously no guarantee that economic development will take place. It will do so if the transport facility is itself located in an appropriate economic milieu -- in other words, in an area with a suitable economic potential. In most underdeveloped countries, there is a serious and persisting shortage of capital for investment projects; in this setting, it is clearly of vital importance that, in the absence of special considerations, investment in transport take place in accordance with the principle of the maximum overall net return to the economy.

"Maximum net return on investment" ought in theory to be the determinant as regards not only the merits of different transport projects vis-a-vis each other, but also as regards the merits of investment as between transport and other (non-transport) projects. In practice, this is not workable, not least because of the difficulties in evaluating relatively intangible social benefits from investments in, say, education and national defense. Even so, the broad principle remains of some importance, in relating to the principle of opportunity costs: investment made in one sector of the economy means investment not made in some other sector.

In practice, even within the transport sector, and even where its application would be feasible, the maximum net return on investment principle is unlikely to be accepted as the sole criterion for investment decisions in underdeveloped countries. In the first place, in many cases the relatively more advanced regions of each underdeveloped territory would very possibly qualify for more investment (and so economic advancement); by contrast, relatively exceptional cases apart, little might be invested in the less advanced regions of each country. This would lead to an increasing disparity between the rates of development of the economically more and less advanced regions of many countries, a policy that might generally be unacceptable.

In the second place, many underdeveloped countries are faced with considerable difficulties with respect to the availability of foreign exchange. This may make it necessary to give a considerable weight to the foreign exchange implications of various projects under review, which affects both estimated benefits and costs of particular schemes. Investment in a project may make possible the development of production for export in the area concerned, thus increasing the volume of foreign exchange earnings; another project might offer a higher net yield on investment; if, however, that yield were to be wholly earned within the domestic market, and if this were unlikely significantly to affect the balance-of-payments position, then the foreign exchange considerations might override the net return on investment aspect, unless the margin on that count were very great indeed.

A third consideration that may have relevance is concerned with the problem of the apparent duplication of investment. Underdeveloped countries are sometimes reluctant apparently to duplicate existing transport facilities, for instance by constructing new roads that may to some extent parallel railways. However, the relevant comparison is not between the rate of return to the railway operator (public or private) and the rate of return on other transport investments to the investors in those assets, but rather between the total overall rate of return on the railway to the economy generally, and the total overall rate of return on alternative investments. If this overall basis of comparison is used, it may well be that the "duplication" investment shows a lower rate of return than some other alternative investment; however, if this is not the case, then the investment clearly should be proceeded with.

Essentially, however, the basic "normal" criterion remains the overall net rate of return on the investment, as compared with the overall net rate of return on other projects which might be financed with the same funds. Beyond this, there is a further principle: special considerations apart, no transport investment should normally be undertaken where the overall net rate of return would not at least be sufficient to permit of the covering of interest and capital repayment charges. In practice, the rate of return should be sufficient to cover substantially more than these charges, because of the risk element, which very possibly may not be adequately reflected in the interest rate actually paid to the lender. Assumed amortisation periods should be short, and more weight should be attached to the risk factor in underdeveloped countries than would be the case elsewhere, because of the far greater uncertainties involved in forecasting the future use of a transport facility.

Planned Longevity of Transport Facilities and Engineering Standards

The planned longevity of an investment in a transport facility depends partly on the initial engineering standards that are employed, partly on the use and quality of maintenance of the asset over time. Future maintenance costs must clearly be included in the consideration of the viability and suitability of transport projects for investment. Where possible, physical "break-even" criteria should be established with respect to engineering standards. These criteria would show the most appropriate engineering standards at different volumes of use of a transport facility. Calculations should be made of the totals of maintenance, interest and amortisation costs at different use levels.

Where relevant, allowance should also be made for net benefits in the operation of other transport assets arising from the investment in question. For instance, the construction of a new road of a given quality might well lead to a diversion of traffic from another road, and to

a reduction in the maintenance costs on that road. So far, mention has only been made of the net benefit (which may well be negative) to the provider of the transport facility. However, "break-even" calculations must include an allowance for benefits to the direct users of the facility in question. In the case of a projected road improvement, for instance, allowance must be made for benefits to vehicle operators, in the form of lower vehicle operating costs and lower accident rates.

One qualification should perhaps be added. Decisions with respect to the engineering standards adopted should allow for the nature of likely traffics over time. Two examples may perhaps be cited. In tropical underdeveloped countries, it is not rare to construct roads, especially local access roads, the traffic on which is highly seasonal. If such traffics come in the dry season, a quite different and much lower standard of construction may be tolerated than would be the case if the traffics occurred in the wet season: even relatively lightly constructed roads are generally usable in the dry season; by contrast, roads which may be heavily used in the wet season must have very much more substantial foundations, drainage and surfacing.

The second example is a rather different one; it is really a peak capacity problem. It may be the case that a given transport facility is perfectly adequate to cope with normal requirements, but is inadequate to deal with peak traffics, be these daily or seasonal. In that case, there may be a case for providing a relatively low capital cost facility to deal with the peak "overflow," albeit at a high working cost, rather than to provide a higher capacity, more capital intensive, lower working cost but high capital cost facility, which will stand for much of the time unused. Thus, if a port has sufficient berthing for normal requirements but inadequate capacity for limited peak traffics, it may be more economic not to extend the quays, but rather to rely on the use of lighters to cope with peak excess traffics. This, of course, assumes that lighter berthage is available.

Transport Investment and Development Benefits

Development benefits in most cases take the form directly or indirectly of increases in the money value (and in some cases amount) of goods and services produced. They are, however, extremely difficult to quantify, not least because of the very common absence of even the most rudimentary data.

There are the benefits that arise if access to a market is opened up. The appearance of merchants arriving to buy and sell goods acts as an important spur to movement from a subsistence to a cash economy. The provision of a motorable road by widening markets makes it possible for farmers to obtain better prices for their produce, and so again encourages the growth of cash crops; the provision of the road, by improving access to competitive sources of supply, may well tend to lead to a

rise in local real incomes, in that the money prices of goods imported into the area fall. The extent of these various benefits will of course vary from case to case. The extent of the actual increase in the volume of cash crop production will depend [in adddition to transport] amongst other factors on the availability of suitable unused land and of land under subsistence crops; on social customs and the availability of labour; on location in relation to local, national or export markets; on the availability of money in buying areas; and on the strength of competition from other producing areas.

Improved transport facilities and market access may make possible the sale of produce in better condition than formerly, so increasing prices received by farmers, and/or the size of the market for the produce concerned. In certain cases, in effect new markets may be brought into existence this way. In one instance, in Uganda, the major improvement of a trunk road, and the substantial saving in vehicle time, have made possible the emergence of a considerable fresh fish trade, where previously there had only been a very limited dried or smoked fish sale.

Improvements in transport facilities may also make possible substantial capital economies in stockholding. With the improvement of a transport network, it becomes possible for merchants to centralise their stores and stocks of goods at one or only a few points, and to deliver goods from that or those points to outlying depots, as and when required, whereas previously it might have been necessary to operate a substantial number of up-country stores.

Measurement of Development Benefits

So far, mention has been made of some of the various types of development benefits that may arise from the provision of new transport facilities. The next, and far more difficult, stage in any survey of potential transport development is the measurement of more general classes of benefit. Even where statistical and other material is exceptionally good, it is not normally possible to quantify more than a limited part of the benefits flowing from an improvement in the transport infrastructure of an area. Essentially, at best all that can be quantified is the net value of additional production, or the net value of production at newer, higher prices ruling in wider markets.

It is not possible to place a value on some other very real social and economic benefits. For instance, the change which occurs at the same time as the movement from a subsistence to a monetary economy brings with it very substantial benefits in the form of education and new human interests and satisfactions, quite apart from the economic benefits that are reaped at the same time. It is not possible to value increased leisure, reduced effort, on the part of the population of the area served by a transport improvement. It is not possible to quantify the value of the greater freedom from the danger of famine that may

result from the carrying through of an improvement. It is not possible to evaluate the personal benefits with respect to "non-economic" movements, that is to say, the value to individuals of journeys made not for trading, but for normal intercourse. This is not to say that such benefits are not very real; yet, they are completely impossible to quantify. The list of these non-quantifiable benefits could be continued at length. For present purposes, it should suffice merely to comment that the "net overall increase in the value of output" criterion understates the total development benefits arising from the provision of new transport facilities.

Measurements of Development Benefits: Requisite Data and Assumptions

In the first place, it is necessary to obtain data with respect to the basic geography and economic limitations and potential of the area affected by a transport project. This data should normally be relatively easy to obtain from central or provincial governmental sources, on a broad regional or national basis; it exists as a normal by-product of government. However, the first need is to define the area regarded as being affected by a particular transport development. Information on the exact area concerned is very often difficult to obtain, as transport watersheds by no means always coincide with political or other boundaries.

Detailed information is necessary on the climate and soil conditions in the area, on its mineral and other natural resources; and on the potential availability of usable land. Data has to be obtained with respect to population; it is likely at best to be based on less or more reliable census data. Ideally, details should be obtained of birth and death rates, and of secular and seasonal migration movements. Where possible, data should be on a tribal or other ethnic breakdown. Notice should also be taken of the extent to which male and female labour respectively carries out farming, transport and merchanting functions. Information on the availability of investment and working capital may be of considerable value in determining the extent to which the full economic potential of a transport improvement is utilisable.

Information is very necessary with respect to the current type and stage of agricultural and general economic development. This includes the assessment of types of agriculture (shifting peasant cultivation, nomadic livestock rearing, settled arable farming and so forth). It is useful to obtain data on the number of farms in the area under study, on typical farm size, and on the numbers and type of labour employed on such farms. Local human factors may be of importance; these may include attitudes towards work, and towards subsistence and cash farming. There may be strong tribal or other social factors affecting the willingness of a population to increase crop production, or indeed introduce new crops.

It is vitally necessary to obtain information on the current production of both cash and non-cash crops in the area under study. Such information may often best be based on estimates of numbers of plots under cultivation, typical plot sizes, typical crop areas on such plots, and typical crop yields. Needless to say, even where such estimates have been made (sometimes by government agriculturalists) they are necessarily liable to considerable margins of error. Occasionally, cash crop estimates can be made on a more reliable basis, where the area assumed to be affected by a transport development coincides with a buying district.

Forecasts of future production can obviously only be made against a price and market background. Assuming that the social climate is appropriate for a relatively rapid development of production, the actual extent to which production does expand will depend largely on the availability of markets in which the local produce can compete. This depends, firstly, on the existence of an adequate level of demand, and secondly, on the relative cost of moving the produce to markets or buying points. The level of demand is partly income-determined and may fluctuate seasonally with seasonal changes in income levels. Partly, the level of demand is a function of the efficiency of the transport system: the lower the cost of transport, the wider the market served. This necessitates the collection of data on transport costs.

In the case of export crops (or other products), however, the competitiveness of an area may or may not be affected by transport considerations; very often, marketing board operations, by subsidising or largely paying the cost of transport, make the problem of transport costs irrelevant in determining production of the commodity concerned in different areas. Production levels are then determined by board pricing policy, or by other factors, including the pattern of world demand and trade, factors which may prevent a country, and so the total of all local areas, from exporting more than given quantities of a commodity. Ultimately, it is only possible to make crop volume forecasts on the basis of an assessment of these factors.

It is rarely possible to forecast the future development of local market prices in isolation. However, it is possible to consider how far the development of lower cost methods of transport may open up new markets where prices are higher than those locally available. The opening up of such new markets may of course itself lower prices to some extent in the new markets, if the additional sources of supply are large relative to demand requirements. This possibility must be borne in mind. It is desirable to measure the net increase in the value of produce that is marketed in higher-price markets as a result of the availability of improved transport facilities. In practice, a more workable approach is to compare total value of produce if sold at the farm, with the value of produce (transport and merchants margins included) at the new markets.

However, great caution is required with respect to the collection and interpretation of local price data.

Consideration in detail of the existing pattern of transport obviously plays a vital part in making possible the assessment of the economic benefits arising from a transport improvement project. In particular, it is necessary to obtain information on the types of transport used to convey goods to and from an area, the time used on transport operations, and the cost of present and potential future movements. In the case of head loading, it is necessary to assign a value not only to the time of paid porters, but also -- as is often relevant -- to the time of women (and children), who carry transport operations on an unpaid basis. In the case of motorised traffics, it is necessary to consider the likely types and sizes of the vehicles that would carry the traffics, and then to obtain operating cost data under typical conditions for such vehicles. Governmental (Ministry of Works or other department) cost data should be used with considerable reserve, as government vehicles are often operated under very different cost regimes than privately owned vehicles. Allowance should be made for the fact that vehicles may well operate below capacity on some routes; on the other hand, allowance should also be made in such conditions for the fact that mixed passenger-and-goods operation may offset the effects of under-capacity working. It is also desirable to consider whether on any particular route, vehicle operating costs may not be lowered by the possibility of obtaining "back-load" transits.

It has been suggested that the net overall return on capital should normally be an important determinant with respect to decisions as to the merits of different transport investment projects. The gross benefits that may result from the carrying through of a transport improvement have been considered, above: direct savings in transport cost, to whomsoever accruing, plus, where they are quantifiable, development benefits in the form of the higher value of produce at hitherto in practice relatively inaccessible markets, and the value of additional production brought forth by the development of the transport facility. From this must be subtracted the value of any decreases in production resulting from substitution of the new crops for the lower-value crops that may formerly have been grown on the same ground. On the cost side, all transport costs have been included that relate to the new investment: maintenance, interest and amortisation charges, net of any savings on other transport equipment that may have been replaced by the new facility. Apart from this, however, one group of costs should also be included. This relates to the maintenance, interest and capital costs of equipment or materials, and operating costs, that are incurred in connexion with, the bringing forth of the extra production. Where agricultural production and marketing of locally consumed food crops grown by labour intensive methods is concerned, this item is likely to be of little importance. However, where major irrigation or land settlement

operations are concerned (and a fortiori as regards the establishment of extractive or manufacturing facilities) then against the benefits must be matched the total costs, and not only the transport costs incurred.

The Traffic Potential

Before any decision can be reached with respect to the quality and types of transport investment that might be justified, it is clearly vitally important that an adequate assessment be available with respect to the traffic potential on any given route or piece of transport equipment. Where possible, such assessments should be based on current traffic data on the facility concerned, and also on other actually or potentially competing transport facilities, this because of the possibility of the improved or new transport asset diverting traffic from the competing facilities.

In the case of road construction, it is desirable to obtain traffic data on an origin and destination basis; if this is not practicable, then mechanical and visual traffic counts should be carried out, and should be supplemented by selective interviewing. Generated traffics must also be allowed for. There is no simple method of forecasting the growth of such traffics. Clearly, it is possible on the basis of crop or product forecasts to assess the number of vehicles that would be necessary in theory to move the forecast traffics. However, such forecasts would normally substantially underestimate the traffics subsequently likely to use the facility. In the case of a new or improved road, apart from vehicles coming in for produce, other (or sometimes the same) vehicles would bring in a more or less greatly increased volume of goods from other areas for local consumption. There would also very possibly be a considerable increase in the volume of passenger traffic. In other words, the number of vehicles using a new or improved road might well be a multiple of the number needed barely to carry away the extra produce. Unfortunately, there is no single, universal factor that might be applied in such calculations to allow for this consideration. At best, it may be possible to proceed on the basis of experience on other roads, built or improved under broadly similar conditions in terms of time, traffic and area.

The Suitability of the Various Forms of Transport for Different Traffics

The problem of the choice of appropriate standards of construction for new or improved transport assets has already been considered, within the context of the selection of standards for a given type of transport equipment. The same criteria to some extent apply with respect to the decisions as to the most appropriate form of transport for a given purpose.

Broadly speaking, in underdeveloped countries the lower capital cost, higher working cost forms of transport are appropriate in all cases except where there is a virtual certainty that very high traffic volumes will be reached and maintained for a considerable enough period at least to complete interest and amortisation payments on the capital borrowed. This type of case occurs, for instance, when a new and extensive iron mining project is under consideration. In such a case, rail (or, if appropriate, water) transport is the obvious choice. In fact, in underdeveloped as in more developed countries, rail transport is ideally suited to the carriage of high traffic volumes of bulky (or indeed dense) traffics over long distances. It is suited for the carriage of ores, timber, and similar products, and may possibly be suited for the carriage of commodities under such conditions.

Much depends on the scatter of origins and destinations of traffics, on their seasonality, and on the topography of the country. Where there is a highly seasonal pattern of transport, it may well be appropriate to concentrate on the provision of low capital cost, high working cost facilities, as these may be unused for substantial periods in any year. For this reason, it may be appropriate to invest in road rather than rail facilities in cases where traffics otherwise appropriate for rail transport move in a markedly seasonal manner. It may be a very real advantage that part of the equipment provided (the vehicles) are very flexible with respect to the areas in which they are used, and so can be transferred as between different areas over time in accordance with seasonal changes in the volume and direction of transport movements.

Consideration should also be given to the extent to which a country already possesses a railway network. If, in fact, much of the traffic is likely to consist of general merchandise sent in small consignments to a wide scatter of stations, then a railway is unlikely to be (or at all events, to remain) competitive with road transport, as and when that develops. If the use of railway transport is likely to entail extensive transshipment on to or from road haulage vehicles because of a likely lack of direct rail access facilities at freight origins or destinations, this will clearly favour the use of road vehicles. The incidence of ownership of goods vehicles should also be considered; if there is often an identity between the merchants or companies bringing in general merchandise for sale, and purchasing commodities for export, it will often be extremely difficult for railways to compete even for the bulk produce traffics which in theory they are well suited to carry. They very possibly may not be able to compete with merchant-owned or carrier-owned commercial vehicles on the "outward" carriage of general merchandise, which tends to move in relatively small consignments to a more or less wide scatter of destinations, and where frequency of operation and speed of transit may well be important considerations. The vehicles used for such traffics are very strongly placed to secure the

bulk produce traffics as back loads on a low cost or charge basis. If this is the case, it might well be very difficult to provide a railway facility which would subsequently be able to operate on an economically viable basis. Therefore, a rail facility should only be provided after very serious consideration had been given to the significance for the country concerned of possible financial losses or to the economic implications of possible legislative policies that might be carried through to minimise such losses.

In any case, one consideration should always be borne in mind when decisions are taken with respect to the choice of form of transport; the minimisation of "pure" transport costs may not necessarily be the sole consideration affecting users' decisions with respect to the form of transport to be employed. Qualitative considerations, for instance with respect to speed, reliability of service, and the prevention of damage, may also be important determinants. In view of this, transport surveys clearly must include within their scope the consideration not only of physical cost, but also of commercial considerations. Such surveys should, therefore, be based in part on a more or less extensive range of interviews with a sample of potential transport users, these being so chosen as to be sufficiently representative with respect to the range of goods to be carried, and transit lengths, and also as regards company size and ownership or non-ownership of vehicles.

RAILROADS IN A GROWING ECONOMY: INDIAN EXPERIENCE

K. L. Luthra

[From "Transport in a Growing Economy: Indian Experience During the First Two Five Year Plans," a paper prepared for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas (Agenda Item E -- E/Conf.39/E/25, October 1962), United Nations, New York, N.Y. Written in English, paper also available in French and Spanish.]

This is a summary of the first half of the paper, followed by excerpts from the second half.

At the commencement of the First Five Year Plan, the Indian Railways, which bear the main burden of traffic, were in need of extensive replacement of over-aged assets. The main task in the First Five Year Plan, therefore, was one of rehabilitation of assets. Because of the limitation of resources, the Plan contained no provision for increase in passenger traffic, and that for goods traffic was considered sufficient only for an increase of 10 per cent over the five years of the Plan. The actual increase in goods traffic during the Plan period was of the order of 24.6 per cent, i.e. from 91.5 million tons in 1950-51 to 114 million tons in 1955-56. The transport situation became increasingly difficult, particularly so by 1953-54, and the Planning Commission arranged a special study of the transportation problem. As a result, measures were taken to augment the railway rolling stock and to liberalise the licensing policies for road transport. In the Second Five Year Plan a large provision had to be set apart once again for rehabilitation of over-aged assets on the railways. However, the emphasis in the Plan shifted to the programmes required to augment the capacity of the railways to meet the growing demands for transport. Railway traffic during the Second Plan increased from

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114 million tons to 153.5 million tons. At the end of this Plan, the railways were still working under a measure of strain and there was a pressing unsatisfied demand for wagons, more particularly for coal and iron ore.

Over the entire 10 years of the first two Plans, freight traffic on the railways in terms of ton miles nearly doubled and that on road transport tripled. The rate of growth of freight traffic on the whole has been about 2.75 times the rate of growth of national income. (This relationship has been observed in other less developed countries carrying out economic development programs.) In the Third Plan, the growth of traffic is expected to be over three times the growth of national income. Preliminary studies indicate that the present divergence between these rates of growth may not be reduced significantly over the coming ten years. The plans for economic development are thus expected to continue to place heavy pressure on the transportation system. The proportion of investment in transport to the total investment in the economy was 18.5 per cent in the First Plan and increased to 20.9 per cent in the Second Plan. In the Third Plan, it was originally programmed at about 16.7 per cent. However, since the Plan was formulated, additional allocations have had to be made and investment in the transport sector may come to 18 or 19 per cent.

The broad trends indicated above provide the framework within which the transport programmes have to be formulated as part of the Five Year Plans. Two sets of measures are required to meet the growing pressure on the transportation system: (a) measures to keep the burden on transport to the minimum; and (b) measures to get the maximum use of the transport assets.

Transportation Aspect of Investment Projects

When considering individual projects in the field of industry or mining under the Five Year Plans, it is necessary carefully to study their transport aspect with a view to ensuring that the demands made by the projects on the transportation system are kept to the minimum. The Ministry of Railways are closely associated with the formulation of projects in industrial and mining fields both in the public and in the private sectors. In considering location of new projects, an attempt is made to select locations where spare rail capacity is available and, in cases where additional facilities are required, these are planned simultaneously as the projects are formulated.

In the case of industries in the private sector, the transport aspect is considered by the Licensing Committee at the Centre when applications for licenses for establishment of new units or expansion of existing ones are made under the Industries (Development and Regulation) Act. In several cases during the period of the first two Plans, the industries were advised by the Licensing Committee to select alternative locations

from the point of view of availability of railway facilities, or to make use of modes of transport other than the railways.

Rationalisation of Movements

A certain degree of rationalisation of freight movements has been achieved through regulation in respect of bulk commodities like coal, cement, iron ore, and foodgrains. The pattern of distribution of these commodities is determined largely by Government agencies which, through judicious planning, can keep unnecessary long distance or cross movements to the minimum.

Difficulties in the movement of coal, which have been experienced for some time, have directed attention to the need for a substantial reform in the existing system of movements of this basic commodity. In order to enable the railways to meet the growing pressure of traffic, it is necessary to organise bulk movements of coal in full rakes of BOX type wagons. Arrangements will have to be made for loading of full or half rakes of BOX wagons at the colliery ends and also for unloading of full rakes at the destination points. It will facilitate bulk movements in full rakes, if large consumers are linked with larger collieries, and small consumers could pool together and obtain their supplies collectively. Such reforms, no doubt, cause some dislocation in the existing trade arrangements between the producers and the consumers of coal, but they are inevitable if the railways have to provide the capacity for movement of increasing quantities of coal under successive Five Year Plans.

Regional Dispersal of Industries

A very important factor in the long run transport planning is the policy being followed by the Government to achieve through successive plans a measure of balance in industrial development as between different regions of the country. The Second Plan made a beginning in this direction with some major projects included in the Plan, as for instance: the new steel plants, development of new coal mines and other mineral deposits, new fertilizer plants, and cement factories. While in the selection of sites for basic capital and producer goods industries, proximity to raw materials and other economic factors generally have to be decisive, there are a wide range of consumer goods and processing industries in which it is possible to foster a regional pattern of development. The process of dispersal of industries is expected to be carried further in the successive plans and is bound in the long run to help in keeping the burden of development on the transport system to the minimum.

Measures to Achieve More Effective Utilization

On the railways, the development programmes provide for introduction of dieselisation and electrification at a pace commensurate with the development of indigenous resources and maintenance skills, the

whole objective of these reforms being to secure a progressive increase in the productivity of railway assets. A great deal of attention is also being given to evolution of suitable designs for railway wagons and coaches, with a view to achieving the maximum utilisation of capacities on the track and marshalling yards, etc. Reference has been made above to the arrangements which are now being actively considered to promote bulk movement of coal in full rakes of BOX wagons. The capacity to be provided in each such rake will be $2\frac{1}{2}$ times the capacity of an ordinary train of four-wheelers. Particularly significant also is the introduction of light-weight wagons and coaches with a view to increasing the throughput capacity of the railways without resorting to the more expensive alternatives of doubling, trebling or quadrupling the track.

Techniques of Transport Planning

With the experience gained in the first two Plans, it is possible to consider improvements in the technique of planning in the field of transport. No detailed forecasts of traffic were made in the First Five Year Plan. In the Second Plan, an assessment of traffic requirements was attempted in the case of a few industries of basic importance, namely steel, coal and cement. It was possible, in the case of these industries, to estimate the future pattern of movements of their raw materials and finished products, having regard to the possible locations of production and the more important points of consumption. An attempt was thus made to tie in the expansion programmes of these industries with those of the railways.

In the Third Plan again, an attempt is being made to determine in advance the likely pattern of movement of raw materials and finished products of selected industries of basic importance. In the case of a large number of commodities, however, the transport requirements have been assessed on the basis of the trends observed in the past in the inter-relationship between their production and movement. Having regard to the conditions pertaining to each particular commodity, suitable assumptions are made about the likely future trends in movements.

The experience in the Second Plan has brought out clearly the serious limitations in assessing the transport requirements of individual commodities in advance. Thus in the case of the coal industry, changes had to be made as the Plan progressed in the pattern of production originally envisaged. The rate of production in the Bengal-Bihar fields was stepped up beyond what was provided for in the Plan, while the production in the other fields failed to come up to expectations. As a result, not only had the railways to carry coal over longer distances than they had provided for in their programme, but they were called upon to provide capacity for larger movements over specific sections in order to be able to move all the coal produced in the Bengal-Bihar fields in the closing months of the Plan. The railways were not quite prepared for

these tasks and, within the time available, could not make the necessary adjustments in their programmes.

On the other hand, unless detailed prospecting and other preparatory steps are completed sufficiently in advance of the preparation of a plan, it is difficult to assess the precise pattern of production in the case of coal and other such industries for the period of the plan. All this points to the need for action being taken sufficiently in advance on the preparation of programmes in the key sectors in the plan. This can be made possible only if long-term plans of a fairly detailed character are drawn up.

It has to be appreciated that in a country like India with a large part of the manufacturing and mining industry in the private sector consisting of numerous small undertakings, it is difficult to make an advance assessment of the expansion programmes of individual undertakings, much less of their transport requirements. However, a large part of the traffic on the railways in India consists of basic commodities like steel and mineral ores, coal, fertilizers, cement, and railways' own stores. In the year 1960-61 the share represented by these commodities in the total traffic carried by the railways was 59 per cent and it is estimated this will increase to 72 per cent in 1965-66. It should be possible to organise collection of factual information on these industries so as to provide the broad basis for the formulation of the development programmes of the railways.

The Indian Planning Commission has been giving thought in consultation with the Ministries concerned to getting suitable organisations established to work on transport planning on a continuous basis with special reference to the long-term future needs. A high-level Planning Committee has been constituted to keep the changes in the pattern of and trends in traffic under continuous review and advise on the formulation of development programmes in the transport sector and adjustments required in these programmes from time to time. Besides the Planning Commission, the Ministries of Railways, Transport & Communications, Mines & Fuel, Commerce & Industry, Steel & Heavy Industries and Finance are represented on the Committee.

The Committee is to be assisted by a full-time technical group of three experts: one a railway man, one with experience of roads and road transport, and the third a transport economist. The Group will organise collection of statistical and factual data in the field of transport; undertake detailed surveys of various regions in the country; and make an assessment of the transport requirements of each region in the Fourth Plan and in relation to the long-term plan of economic development. The Group will also examine the comparative suitability and economics of the various means of transport for meeting the requirements in each region and offer suggestions regarding the broad lines on which development of further facilities should be planned.

PLANNING A ROAD PROGRAM

Rex M. Whitton

/From "Highway Planning and Programming in the Economy," Transportation, Volume V, Science, Technology and Development: United States Papers Prepared for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas, pp. 47-52./

These are excerpts from the paper.

Improved roads are expediting the social, political, and economic growth of many less developed countries. U.S. Bureau of Public Roads engineers, who have worked on foreign assignments, report freight transportation costs reduced from a dollar or more to a few cents per ton-mile when primitive forms of transportation -- human bearers, pack trains, and oxcarts -- have been replaced by highways or railways.

A large part of the increase in the national income of Uganda is due to the construction of a road system. No precise relationships have been established, but large numbers of people have migrated to the areas with new roads, and the effects on cotton growing have been impressive. The construction of 64 miles of roads in one district (an increase of 114 percent in the area's road mileage) resulted in a 400 percent increase in cotton production.

Another example of the stimulus provided by road construction is Jordan's new Amman-Aquaba highway. This 200-mile road has the potential of becoming a main channel of trade for Jordan, Lebanon, Syria, and Iraq. Apart

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from fostering Jordan's economic development, it is estimated that savings of some 30 percent will be made in the cost of transporting phosphates, the main export. On the previous unsurfaced roads, heavy trucks could make only three round trips a month between Amman and Aquaba. With the improved road alignment and surfacing, a round trip can be completed in a single day.

The Mindanao road development project in the Philippines has produced some significant results. The 180-mile road between Davao and Butuan City links two provincial capitals and has opened up over 1,400 square miles of fertile agricultural lands in the two provinces. The new route saves a distance of 160 miles and 14 hours of bus travel between the two capitals together with large savings in oil and fuel consumption and tire and vehicle wear. During the 9-year road development program, an estimated 300,000 people settled in the area, acquiring 64,000 farm lots, with a combined area of more than 1,400 square miles. The volume of production of palay, corn, and other staples increased in the area by more than 100 percent, and 293 barrios (villages), 25 municipalities, and 306 new schools were created.

The Mexican Government began a highway improvement program in 1949 to open up humid and semi-humid land in previously isolated areas. Some 625 miles of new low-cost all-weather feeder roads were completed in 1950 and the economic impact of this program was so successful that the annual rate of road building has steadily been increased in the past 10 years. New feeder roads have opened up 2,300 acres for cultivation per mile of road and the average for the whole program is about 1,000 acres per mile.

The Principle of Growth

Improved highway facilities tend to generate increased traffic flow. In a country devoid of good roads, new traffic appears and grows as soon as improved roads are built. At the other extreme, in an area where highway transportation exists in an advanced stage of development, and where roads are already overcrowded with teeming traffic, the construction of an expressway to relieve congestion also produces new and growing traffic.

These conditions of traffic creation and increase are not brought about by highway improvement alone. Adequate highways exist in parts of the world where growth has been small or has not taken place at all. Generally, it has been found that burdensome excises or high motor-fuel and vehicle-license fees are imposed in such areas. In the United States, the forbearance exercised in the taxation of motor-vehicle usage in the early stages of road development was a sound measure that contributed to the growth of highway transport.

It is obvious that highways constructed now will be used for many years to come. Present design should therefore anticipate the needs of future traffic. It is less obvious at least in the earlier stages of highway transport evolution that lack of provision for future demands may tend to stifle rather than foster the growth of traffic. Highway systems are necessarily improved section by section. In an early stage of highway development, if slender means are consumed by overly expensive improvements of a few sections, a consequent delay in improving the remainder of the system may be the result. The fundamental purpose of highway planning in the beginning stages of development is to foster the growth of traffic. Later it must employ every resource to accommodate inevitable further growth.

Highway Planning Studies

Sound planning requires the assembly and analysis of much information. Population growth and distribution information, from censuses if available or otherwise from estimates, are needed to indicate possible changes of the future. Similar information or estimates are needed with regard to agriculture, natural resources, industry, commodity exports and imports, and tourist travel. Proper planning for highway and land use also calls for information on climate, topography, and soil character.

Sound planning also requires a detailed inventory of the nature and physical dimensions of highway facilities, and the various aspects of their financing. With this information, a highway department is then in a position to plan and program highway developments properly, both in relation to other transport media and to the total economy.

From an accurate inventory it is possible to prepare summaries on the mileage of roads in the several systems, classified as to rural and urban location, surface type, width, and condition. This information, for example, is fundamental to the preparation of maps and the development of highway needs. Knowledge of man-made developments and their location and types is an indicator of traffic generation. Curvature, gradients, and sight-distance information on main roads are essential to appraisals of traffic capacity.

Traffic data are used in the estimating of travel in rural and urban areas and on the different surface types. Plotted on maps, it can show highway usage and the relative importance of routes. Used with inventory data, the traffic capacity of routes can be appraised for trend estimates and for classification studies.

A third group of planning studies involves an examination of government financing of highway maintenance, replacements, improvements, and the study of an equitable basis for assessment of highway-user taxes. This group of studies can best be described as an assembly of data on

the income and expenditures of the government and its various subdivisions. The subsequent analysis indicates the sources of all revenues and classifies expenditures as to object -- highways or streets, education, public welfare and services, or for general government.

It is also desirable to develop a uniform system of identification and designation for projects and accounting with a continuing analysis of capital investment. Improvements in highways start depreciating from the day they are first built and a proper analysis is required to reveal what is happening to the original investment.

Legislation and Regulation

Long-range highway programs covering both physical and financial aspects may require a re-examination of basic highway laws or perhaps changes in the present management of highway functions. Existing laws sometimes stand as barriers to effective long-range highway planning. Provisions that seemed eminently sound and desirable at the time of their adoption may subsequently become restrictive insofar as effective management is concerned. Administrative regulations often have the same effect, but are usually less formidable because of the greater ease with which they can be modified. Statutes and management practices should, therefore, be modified when necessary to permit effective change.

Reservation of Right-of-Way

One of the first essentials in a highway development program is to assure that sufficient right-of-way will be available not only for road-building in the initial stages of the system, but also for subsequent possible expansion of the highway facility. The costs involved in early right-of-way acquisition will not be so great as at a later date, when the cost may be so exorbitant as to preclude needed expansion.

Another means of assuring the preservation of sufficient land for future highway facilities is through the formulation of an official or master plan which would include zoning. The use of such a plan has been found highly satisfactory, and is generally authorized by legislative enactments.

Program Planning

Sound program planning techniques present many advantages. Accurate construction schedules are provided for individual projects. Right-of-way acquisition planned in advance often means that land may be purchased at a lower cost and will be available when needed. Reliable estimates on a long-range basis can be made of the road program workload and of organizational needs. Costly emergency programs of road improvement and construction are avoided, as well as subsequent cutbacks. A firm foundation

is provided for effective communication to the public to ensure clearer public understanding and acceptance of the program.

Since government capabilities and concepts differ as to budget limitations and other matters relative to future road planning, the stages of advance road programing should be made flexible enough to be implemented under varying conditions.

Two essential preliminaries to program planning have already been described -- the inventory and the collection of information on road use. Neither the inventory nor the road use data are intended to provide a qualitative evaluation of the highway system, but they do establish facts about existing roads and these, in turn, serve as a basis for arriving at subsequent conclusions.

Classification of Roads

Highway networks provide a variety of services. Individual routes or sections have specific characteristics associated with the dominant functions of traffic usage. At one extreme are the low-volume, land-access roads or residential streets. These provide access to adjacent property and are of local interest. Most mileage is of this type. At the other extreme is the freeway system whose routes serve through traffic and which do not provide access to adjoining property. They have the largest traffic concentrations. Between these two extremes are routes of varying degrees of importance, ranging from local community, feeder, or collector roads to primary roads and arterial streets.

A primary use of the inventory of the highway system is the guidance obtained for the systemization of highways. Regardless of the extent of a nation's development, this process if fundamental to a determination of highway needs and financing. The process is basic to efficient management, the development of appropriate standards, priorities, and financing.

If the system already is arranged properly, the differences arising from a classification study will be minor, but if the system is unsound, the differences may be great. If there is some question, for example, whether the primary system has been overextended, it should be clear from a careful classification study how much mileage and what roads presently on the primary system do not warrant being there because of their low volume of traffic. On the other hand, it may be found that some secondary roads are in fact primary in amount of traffic carried.

The next stage in program planning is to study the entire system. This is essential to developing a long-range plan for the improvement of the deficiencies, both of existing roads and of the system as a network, and those that are likely to evolve in the future. Each road must be

studied to determine if it is adequate to serve current traffic needs and those of some future date. The nature of the needed improvements and their costs have to be estimated both for existing roads and bridges, and those facilities that may be added in the future. In evolving a long-range program, the time period required to complete future work may span 8 to 15 years -- 20 at the most. The span normally reflects the desirable, or possible, time period for bringing a road system up to proper standards.

The size of a road improvement program necessarily is dependent upon a financial analysis. The following elements should be weighed and correlated: (a) The cost of improvements as reported in the requirements study. (b) Funds necessary for maintenance, administration, and interest and principal payments on bond issues if they exist or are contemplated (these represent continuing obligations that must be met). (c) Available revenue from present or potential sources. (d) The time period of the program. After making these decisions, the rate of providing needed improvements to bring each class of road up to par should be considered.

The improvements necessary for each class of roads will influence the overall distribution of funds. These factors, and more importantly the rate of improvement of all road systems combined, are usually determined by the legislature which provides for the financing. It may be considered desirable to maintain a relatively uniform rate of improvement during the program, which may be short or long in terms of years. On the other hand, it may be decided to overcome the backlog of present needs by accelerating work in the early part of the program, and then tapering off in the later phases. In the first case, a steady flow of money would be needed. In the second, a greater amount would have to be allocated early in the program, perhaps through bond issues that would have to be repaid out of revenues in the future.

A sound financial plan makes it possible to arrange specific road improvement projects in order of priority. The requirements study should disclose that a substantial number of improvements should be given immediate attention. If financial and other limitations prevent taking care of all at once, it is essential that the most critical needs be met first by sorting out projects within each class of roads in a priority sequence.

The final step is program assembly which comprises the conversion of all of the collected information and analyses into a realistic timetable of construction. In developing this timetable, it is necessary to evaluate factors other than traffic needs and road adequacy alone. Such factors include the continuity of improvements on particular routes, geographic distribution of work, jurisdictional coordination, availability of funds in cooperatively financed projects, the balancing of work between different types of work (e.g., roads and bridges), and the problem

of detours and their effect on travel. The priority listing of these items, good engineering judgment, and attention to policy matters will ensure a balanced work program.

In total, the product will be a long-range program which includes all projects that can be accommodated within the limitations of the long-range financing plan. Within this framework, groups of projects will be sorted according to priority into a sequential series of short-range programs.

The immediate short-range program is relatively fixed and detailed. In as much as the preliminaries of road building, such as surveys, plans, and acquisition of right-of-way, often cannot be carried out in a single year, the short-range program normally should cover a two to five year span.

In the long run, the most vital requisite to the success of advance road program planning is that its results be reviewed, analyzed, and modernized periodically -- to serve the best interests of the area, region, and nation.

RESEARCH FOR TRANSPORTATION DEVELOPMENT

Robert B. Keating

/Highlights from un unpublished report on the Transportation Sessions of the UN Science Conference./

These are excerpts from the report.

The recent United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas brought into sharp focus the unique role played by transportation in the development process. Accessibility and mobility are essential elements in almost everything that the less developed countries are striving to accomplish. Lack of access and absence of mobility frustrate efforts to accelerate development and are often reflected in unused land and other resources, large tonnages of food left in the fields to rot, and excessive prices of commodities. The absence of both personal mobility and commerce means an absence of trade in ideas as well as goods. Thus, transportation was recognized as a key factor in the success or failure of the entire development effort.

In consequence of its importance, transportation has taken a large share of the funds available for national development programs. In the developing countries, transport is absorbing 20 to 40 percent of their public capital allotted for development. During the past decade and a half, 30 percent of all U.S. economic aid to the developing countries has been for transportation. Approximately the same emphasis has been given

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to this sector in the programs of the World Bank and, in 1960-61, the Bank's loans for transport increased to 51 percent of its total transactions.

Although the transport sector pre-empts extensive development resources, the Conference revealed inadequate knowledge about the developmental effects of transport investments; the many factors that condition the desirable timing of transport improvements; the relative merits of alternative transport media, of various administrative solutions, and of different approaches to financing, rate-making and regulation; and the contributions that improved mobility could make to the achievement of economic, social, cultural, and political objectives in the less developed countries.

In large measure, these critical gaps in knowledge result from an almost universal tendency to view the transport needs of a country in isolation from the goals that transportation could help to achieve. Many solutions, unsatisfactory from a development standpoint, can be traced to the undue emphasis on separately programing and providing transport facilities without full consideration of the economic and social circumstances. Of equal importance is the failure adequately to review transportation proposals, economic justifications, traffic forecasts, and anticipated benefits, and to compare these with what has already happened. As a result, developing countries continue to use essentially the same techniques and make the same assumptions about their needs without benefitting from their own or others' experiences. Many experts at the Conference were amazed at the number and extent of the deficiencies in information exchange, e.g., engineers who had experimented with a feeder road system in one country found that exact answers to their problems had been worked out some time before in another area.

Hence, in order better to understand the critical problem areas in the transport sector, data are badly needed on costs, resource needs, training requirements, developmental effects, financial methods, survey techniques, organizational problems and solutions, methods of integrating transport systems, and specific transport problems relating to agriculture, industry, education, and other sectors. In short, the effective study of transportation and the determination of desirable courses of action call for the collection, processing and dissemination of many types of basic data and statistical information.

The Conference emphasized that developing countries today have a number of potential advantages compared with the past. First, they do not have to move slowly and laboriously through successive stages of transportation evolution, but can adopt the latest and most efficient advances in conventional transportation. In addition, the accumulated benefits of science and technology are at their disposal, and a judicious selection of novel means of transport, as they become economically

feasible, could hasten economic development. Among the most promising innovations now being developed or already in operation are the vertical take-off aircraft, off-road locomotion, the ground effect machine, pipelines for solids, the hydrofoil ship, interchangeable freight containers, simplified cargo handling techniques, and unitized mechanical refrigeration systems. Outside the transportation field, other new technological developments are underway which could yield important economies in transport requirements, e.g., new sources of motive power and forms of energy distribution, new techniques of processing and preserving food, and new possibilities for substituting communications for transport.

A second major advantage advanced for less developed areas is the trend towards general acceptance of national planning, which makes it possible to relate transport planning more closely to over-all development programs. Developing countries are thereby able to base their allocations of resources to transportation on the needs of the economy as a whole and to schedule transport investments in balance with the growth of production and distribution. The Conference emphasized, however, that much more careful scrutiny of the claims of the transport sector for development resources is desirable as the opportunities for waste are very great.

In addition to such improved substantive appraisal of transportation projects, there is an urgent need to answer other questions involved in effective planning of transportation development. What kind of strategy is guiding or is implied by diverse transportation efforts? Is it a strategy that will make a maximum contribution to development? Are resources being scattered too thinly to expect anything significant to follow from them? Does planning take into account the new revolution in transport technology and the possibility that wider choices are already or will soon be available? Most importantly, are transportation investments needlessly diverting scarce resources from other urgent requirements? To date, only a few countries have made a successful effort to estimate their total transport requirements on the basis of national goals, and to link specific transport proposals to a total plan geared to the nation's anticipated development program.

Another essential need discussed at the Conference is the establishment of international machinery by which information on transport problems and solutions could be made known in a systematized way. In the field of improving knowledge through research and training and through the exchange of information, the industrialized nations have hardly begun to tap their resources for the improvement of transportation in the less developed countries. What is eventually needed is a world-wide program of information exchange and research cooperation that could multiply both the knowledge of transportation and the rate of progress in overcoming transport problems. It was generally agreed that guidance should be sought from the United Nations on this matter, although at present there is no UN agency which is empowered to take action in this field. New arrangements would be required to ensure an interdisciplinary approach and a maximum of cooperation and coordination.

TRANSPORTATION

/Science, Technology, and Development: United States Papers Prepared for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas, Volume V, Transportation; Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., 1963, ix and 155 pp., US$0.50./

This is Volume V in the series of twelve books published by the U.S. Government especially for the UN Science Conference. As do the others, this volume contains papers by leading U.S. experts in government agencies, universities, private research institutions and business firms. The first two papers in the volume deal with the general economic and social relationships between development and transportation. The third is on transport technology and economic development. A series of eight specific papers is then concerned with the various forms and means of transportation -- e.g., roads, railroads, air transport, pipelines, harbors and waterways, ocean transport, etc. -- and with the special problems of moving goods and people in urban areas. Finally, three papers discuss the technological and scientific aspects of improving transportation in less developed countries.

JOURNEYS TOWARD PROGRESS: STUDIES OF ECONOMIC POLICY-MAKING IN LATIN AMERICA

Albert O. Hirschman

[New York, the Twentieth Century Fund, 1963, xi and 308 pp., $4.00.]

In this new study prepared for the Twentieth Century Fund, the author of The Strategy of Economic Development continues his studies of the strategic elements in the process of social change and economic growth. His new volume differs from its widely read predecessor in two important respects: it is concerned specifically with the problem of how important economic decisions are made by the policy-makers rather than with economic processes as such; and it is based on intensive empirical study of three specific crisis situations rather than on a broad survey of relevant data and literature.

Professor Hirschman's specific purpose in this new book is to illuminate the ways in which major economic reforms have actually come about in Latin America. He studies three situations in detail: the history of programs for dealing with the drought-stricken Northeast region of Brazil; the efforts over the past 30 years to reform land ownership and use in Colombia; and the record of successive attempts to cope with Chile's century-old inflation. Each of these case studies focuses on the process by which policy-makers and politicians decided what to do or not to do, and the influences which affected their decisions. In the concluding section of the book, Professor Hirschman derives from this analysis certain insights into the methods of problem-solving in the Latin American context.

The three empirical studies have led Professor Hirschman to conclude that the conventional "peaceful reform versus violent revolution" dichotomy is an unrealistic

formulation of the alternatives facing Latin America today. In recent years, many Latin Americans have insisted that violent social revolution is a necessary precondition for the solution of the region's economic problems. In the United States, there has been an opposite tendency to assume that social reforms could be readily put into effect provided only that the need for them was adequately understood by Latin American leaders and that part of their cost would be covered by U.S. aid under the Alliance For Progress. To Professor Hirschman, neither of these views is valid. In response to the Latin American contention that "nothing can be changed unless everything is changed," he points out that many important reforms have been accomplished, often in unexpected ways, and that the allegedly "solid front of the oligarchy" can be and has been breached time and again. In contrast to the U.S. expectation that obviously beneficial reforms could be introduced in a smooth, straightforward fashion, he explains the wily, complex and roundabout tactics that the reformers have usually had to use if their efforts were to be effective. Professor Hirschman calls such successful tactics "reformmongering" and offers his case studies as source material for an eventual "reformmonger's manual."

The book clearly demonstrates that empirical study of actual Latin American experiences in policy-making -- as contrasted with abstract reasoning or with deductions from ideological assumptions -- yield a rich crop of insights into how economic and social changes really occur and how specific problems could be pragmatically attacked. In each of the three case studies, he traces the reasons why policy-makers became convinced that they had to do something about the problem confronting them; and the ways in which they were able to make significant progress by recognizing opportunities for action, by shifting alliances among interest groups to win needed political support, by judicious use of incentives and pressures, and by many other devices. Though, as Professor Hirschman points out, the detailed case studies do not lend themselves to easy generalization, he nevertheless presents in the concluding section of the book a series of general propositions on the process of policy-making and some interesting suggestions and guidelines for the "reformmonger." A principal conclusion of the author is that many of the so-called obstacles to development can often best be overcome by flanking movements, and that they may even on occasion change their roles and be used to bring about the advances which they have hitherto blocked. Professor Hirschman maintains that "a society can begin to move forward as it is, in spite of what it is, and because of what it is." [Author's italics]

Professor Hirschman's conclusions about the successful reformer -- "naive or wily?" -- are summarized in these excerpts from the concluding chapter of the book:

"Revolutionaries will maintain, as we have seen, that the needed changes cannot be effected without a prior overthrow of the 'system'; reformers, on the other hand, behave like the chessplayer who exasperatingly fights on when 'objectively' he has already lost -- and occasionally goes on to win! The reformer sets out after his reforms blissfully unaware that the ruling class will never allow this or that antagonistic measure to pass or to become effective. He is a naive and pathetic figure at the start, an easy target for the revolutionary's sarcasms, but since he acts, he learns from his mistakes and from the resistances he encounters, and he frequently ends up as a wily individual from whom the revolutionary may well learn a trick or two.

"This education of the reformer is well brought out in our stories. In Colombia, for example, reformers attempted in the fifties to achieve better land utilization through the mildly antagonistic measure of penalty taxation combined with the non-antagonistic measure of colonization of public lands. But they soon found out that planned colonization can make at best only a marginal contribution to the solution of the agrarian problem and that penalty taxation arouses opposition without generating support, since it is fiercely resisted by the landowners but is not perceived as a direct benefit by the landless farmers. The turn to land reform can in part be explained by these negative experiences; even though it is a more antagonistic measure than taxation, its proponents are sure of support from the campesinos, they do not incur the hostility of the small and medium-sized landowners, and the large ones may actually not fight the reform very hard because any individual owner is liable to think that the reform will either not be applied at all or will not reach down to him. Taking full advantage of such constellations, our 'naive' reformer has by now turned into a master tactician who manages to slip through a workable reform to the surprise and dismay of both landowners and revolutionaries!

"A similarly a priori improbable feat is the establishment of SUDENE with its group of determined reform-minded top officials, equipped with considerable finance and power, in the middle of a Northeast [Brazil] still dominated by its traditional elites. Again, this achievement was due to learning from prior non-antagonistic attempts at solving the Northeastern problem and to a judicious exploitation of a crisis atmosphere combined with a remarkable talent for forming temporary alliances.

"The reforms which take place in Latin America today are anything but manifestations of sweet reasonableness. Nor are they accurately described as resulting from a 'recognition by the ruling class that it has to give up something in order not to lose everything,' as the cliché

would have it. Rather they are extraordinary feats of contriving in the course of which some of the hostile power groups are won over, others are neutralized and outwitted, and the remaining diehards often barely overcome by a coalition of highly heterogenous forces.

"'Divide and reform' tactics are usually found to be one important ingredient of the maneuvers making these feats possible."

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HUMAN RESOURCES AND ECONOMIC GROWTH:
AN INTERNATIONAL ANNOTATED BIBLIOGRAPHY ON
THE ROLE OF EDUCATION AND TRAINING IN
ECONOMIC AND SOCIAL DEVELOPMENT

Edited by Marian Crites Alexander-Frutschi

[International Development Center,
Stanford Research Institute, Menlo Park,
California, 1963, xv and 398 pp., $3.50.]

This is an annotated bibliography of selected materials in English, French and Spanish on various aspects of the roles of education and training in economic and social development. Though it was compiled especially for the use of people in less developed countries, a large number of items deal with educational objectives, problems and methods in the developed countries of North America and Western Europe. However, special attention has been devoted to published materials dealing with Japan and Mexico because of their long histories of educational efforts related to economic development.

The bibliography is divided into nine major subject sections, dealing with the general relations between human resources and economic development; the economic aspect of human resource development; manpower resources; rational utilization of human resources; methods of educational planning; general educational programs; special educational programs; new techniques; and international cooperative efforts. A concluding section contains entries by geographical regions. In all, a total of 1,150 items are included. Each consists of a full citation and a descriptive paragraph, often in the author's own words, on the subject and general approach of the publication.